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ARANEAE AND SOLIFUGAE

By JOHN HEWITT

With 4 plates and 13 text figures

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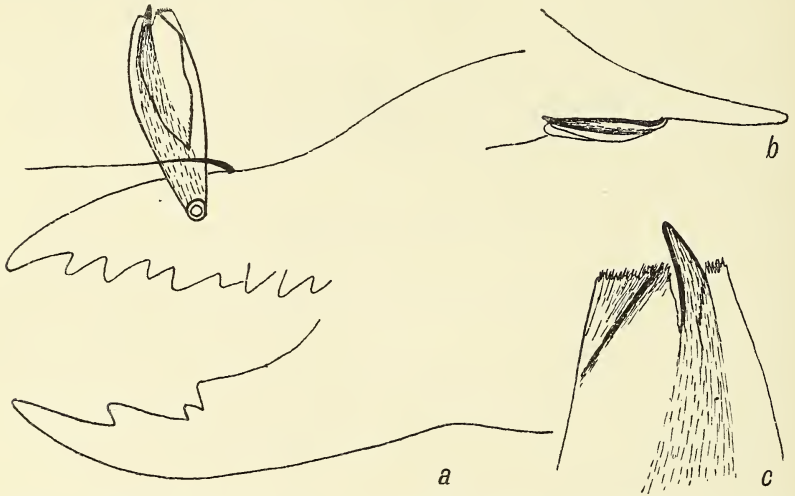
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Order SOLIFUGAE.

Blossia laticosta sp. nov. (text fig. 1 a-c).

The type of this species is a single adult male collected at Blauwkoop, Zoutpansberg dist., by Mr G. van Dam (10. viii. 1916). No species of this genus has been hitherto described from the Transvaal, and the relationships of *laticosta* to any of the species described from adjacent parts of S. Africa are not very obvious: it presents definite points of affinity to *B. unguicornis* Purcell, the type of which came from Dunbrody, Uitenhage dist. (*Annals S. African Mus.* II. p. 214), but the complete absence of shaggy hairs from the surface of the flagellum will at once serve to distinguish the species.

Colour. Headplate, tergites and appendages with a dull reddish brown tinge. Metatarsus of palp more darkly coloured, and to a less extent also the distal half of the tibia.



Text fig. 1. *Blossia laticosta* sp. nov. a, Right chelicera of male viewed from mesial side. b, Anterior portion of upper jaw viewed from above. c, Distal portion of flagellum considerably magnified, viewed from side adjacent to the chelicera.

Headplate. The surface is covered with numerous short spinules and is completely devoid of long spines or bristles: there are several short stout spines scattered about near the margins, and a small group occurs in the neighbourhood of the eyes.

Tergites. On the three thoracic tergites long stout spines with bifurcated tips occur. The abdominal tergites are devoid of long setae or bristles except in the last segment. A few short spines occur on each of these tergites except the last and they are weak on the two penultimate tergites.

Pedipalp. On the lower surface of the metatarsus on its inner side is a row of 3 or 4 spines, and on the lower surface of the tibia are about half-a-dozen spines, some of them being slender and weak, the series being not definitely arranged in two rows.

Chelicerae. The upper surface carries stout spines most of which are slightly bifurcated at the tip, some being of moderate length and others short. The distal dorsal bristle is stout at the base and tapers finely to the apex, being

completely devoid of lateral setae or spinules throughout its course. In the upper jaw the two distal teeth are large, the third of moderate size, the fourth largest: besides, there are two rows of three each. In the lower jaw are two large teeth and one intermediate tooth of moderate size.

Flagellum. In side view the flagellum is more or less torpedo shaped and has no stalk. The membrane forms a closed cup in the basal third, but in the distal two-thirds the lateral margins of the membrane are merely infolded a little thus leaving a long broad opening on the mesial side of the capsule. There are no prickles or setae on this membrane, although the distal edges are slightly frayed and to a slight extent also the infolded edges proximally. There is a broad brown or yellow thickened rib running along the membrane on the side next to the jaw: this is quite sharply defined distally, and its bluntly pointed apex projects a little beyond the distal margin of the membrane: towards the basal portion of the flagellum it gradually broadens out and is not very sharply differentiated from the thin colourless membrane.

Modified hairs of second abdominal sternite. There is a cluster of three contiguous pink fleshy hairs on each side.

Measurements. Total length 11, length of flagellum .6, of tibia of palp 4.5.

I have examined a series of forty adult males of *B. unguicornis* Purcell, collected at Alicedale by Mr F. Cruden, and find that in each case the modified hairs of the second abdominal sternite comprise two pairs, as described in the type of that species. An examination of a retracted flagellum in dorsal view shows that the amount of free membrane dorsal to the rib is very much greater in *unguicornis* than in *laticosta*. Female specimens which are no doubt referable to this species were taken at N'jelele River by Dr Breyer and Mr G. van Dam (24 and 25. vii. 1916). They agree closely with the male in the dentition of the chelicerae: the colour characters are somewhat similar, the distal segments of the palp being infuscated, whilst the general colouration of the appendages and head plate is pale brown, without a reddish tinge. Total length 13.5.

Blossia laminicornis sp. nov. (text fig. 2 a-c).

The type of this species is a single adult male specimen collected at De Aar by Mr S. C. Cronwright-Schreiner.

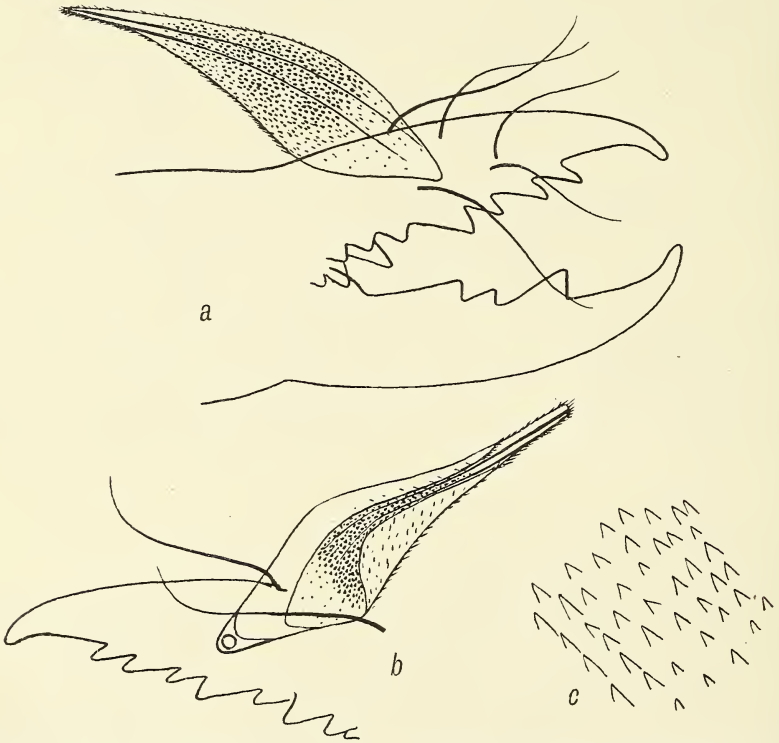
The species is closely related to *B. namaquensis* Purcell (*Annals S. African Mus.* II. p. 212), taken at Steinkopf, but seems to differ therefrom in the dentition of chelicerae and in shape of flagellum.

Dentition. In the upper jaw, the third tooth is of moderate size, being only a little smaller than the first and second teeth. The largest tooth of the single series is the fourth. In the basal portion of the fang, there is an outer row of three rather small teeth, and an inner row comprising two larger teeth and one small one, the latter, which is at the base of the series, being closely adjacent to one of the large ones. In the lower jaw the intermediate tooth is of moderate size.

Flagellum. This is a delicate membrane rotatably attached at its base to the inner mesial surface of the jaw. It is widest about the middle of its length, where its margins are strongly infolded on the side away from the jaw: towards the base, these infolded margins meet so that the basal part of the lamina forms a cup: distally, the membrane gradually narrows into its elongated apex. A thick yellow longitudinal rib runs the whole length of the organ, being slender and sharply defined distally, but broader and less clearly distinguishable from the adjacent membrane basally. The mesial portion of the

exterior surface of the membrane is closely studded with minute triangular denticles, except towards the base and on the narrowed distal portion. The margins for the most part are fringed with short stiff setae which also occur on the exterior surface of the infolded portions of the membrane: these are essentially elongated denticles.

Distal dorsal bristle of the upper jaw with only a trace of short fine lateral setose prickles in its distal part. It is precisely similar to the other bristles which occur on the outer and upper surfaces of the upper jaw: the bristle figured in text fig. 2 *b* along with the dorsal bristle is more distinctly setose along its length than the dorsal bristle. Near their apices these bristles are all quite smooth.



Text fig. 2. *Blossia lamnicornis* sp. nov. *a*, Right chelicera of male viewed from the outer side, showing flagellum and some of the long bristles which occur on the distal portion of the upper jaw. *b*, Upper jaw of same viewed from the mesial side. *c*, The denticles on the surface of the flagellum, highly magnified.

Tergites. On the first abdominal tergite, and to a less extent on the second and third, there are some short stout scattered spines: on the posterior tergites such spines do not occur, nor are the numerous short cylindrical bristles so long as the above mentioned spines.

Sternites. On the second sternite there is a pair of long curved fleshy hairs on each side. The hairs of each pair are closely approximated along their whole length. The pairs arise from adjacent points, near to the midline, and cross each other at their apices.

Pedipalp. The tibia of the pedipalp carries from three to six spines on the lower surface, and the metatarsus two. The cylindrical bristles on the dorsal surface of the tibia of the palp are very short in the basal half of the segment, long in the distal half.

Colour. The general colour is pale yellow.

Measurements. Total length 12.2, length of palp 15.5, length of flagellum 1.15.

An adult female captured at the same time has a general resemblance to the male, but the limbs are shorter and weaker. The third tooth of the upper jaw is of moderate size: the outer row comprises seven teeth and the inner row three, the two basal ones of the latter being close together: the intermediate tooth of the lower jaw is small. On the tibia of the pedipalp there are four long spines which are relatively weaker than in the male, and two or three occur also on the tarsus. The surfaces of the body are unfortunately too rubbed for descriptive purposes.

Total length 11, length of palp 9.4.

Order ARANEAE.

Family AVICULARIIDAE.

Acanthodon monticoloides sp. nov.

The types of this species are single specimens of the adult male and female collected at Pigg's Peak, Swaziland, by Mr A. Roberts (16. v. 1916). It is related to *A. monticola* mihi (*Annals Trans. Mus.* v. p. 185), but is easily distinguished therefrom in the absence of spinules or spinuliform setae on coxa III in either sex.

MALE.

Chelicerae. The inner row of teeth is represented by a single fairly large tooth: the main row has seven teeth.

Pedipalps. Tarsus with one long stout spine near the apex superiorly and several weaker ones. The band of spines margining the excavation of the tibia is interrupted in the middle: there are nine or ten spines distally and 10-14 proximally.

Legs. Coxa III with a strip of scattered setae along its post-ventral border, a few of these setae being much longer and rather stouter than the rest, though none can be described as spiniform. Tibia I scarcely stouter than the patella, except near the apex, but decidedly stouter than the metatarsus, equal to the metatarsus in length, its distal tubercle bearing a long flattened black process with rather blunt apex: there is a row of 3-5 rather weak spines along the outer side inferiorly. Metatarsus I not bent nor incrassated in any part of its length, practically straight: on the outer side inferiorly is a row of five long and fairly stout spines, and on the inner side inferiorly are two such spines. Tarsus I with one spine anteriorly and one or two posteriorly: inferiorly it is thinly scopulate. Tarsi II-IV all scopulate to the base. Band of spinules on anterior side of patella IV stretching over about three-fifths of the length of the segment and comprising only about a dozen spinules. Patella III with nine or ten spinules on the anterior surface, including the several short spines on the apical edge, also with one weak spine on the dorsal surface and two or three at the apex posterodorsally.

Sternum with three pairs of sigilla, the first pair being marginal.

Carapace. Length of ocular area a trifle greater than one-third of the distance from the anterior margin of the carapace to the fovea. Frontals about one-fifth of a diameter apart, subequal to the anterior medians. Posterior row in a procurved line, the medians being about $2\frac{1}{2}$ diameters apart but hardly $1\frac{1}{2}$ diameters distant from the laterals.

Measurements. Total length 13, length of carapace 5, breadth of carapace 4.7, length of tibia of first leg 4.7.

FEMALE.

The principal characters of the female are: sternum trisigillate, the first pair being a little removed from the margin: coxa III with stiffish setae along the postventral border: tibia II with nine or ten spines on its anterior side: patella IV with the band of spines on its anterior side stretching, with interruptions, almost to the end of the segment: tibia IV without distinct spines on the anterior surface except one or two at the apex inferiorly: chelicerae with one large tooth representing the inner row: ocular area only very slightly longer than one-third of the distance from anterior margin of the carapace to the fovea, frontal eyes about half a diameter apart but on a single tubercle, the eyes of the posterior row being related to each other much as in the female but the hind margins are more or less in one straight line. Total length 24, length of carapace 9, breadth of carapace 7.7. The colour of the female is dark chestnut brown on the carapace and appendages, the abdomen also infuscated: the male has a yellowish brown carapace and appendages.

Acanthodon gracilipes sp. nov.

Type. A single adult male from East London, collected by Dr Geo. Rattray in August 1916. The species is evidently closely related to *A. thorelli* O. P. Cambr., which is indefinitely located "S. Africa," but seems to differ therefrom in the character of the frontal eyes. It may also prove to be related to *A. kentanicus* Purcell, a species which is only known through the female type specimen.

Carapace. Anteriorly it is truncated, thus differentiating the anterior and lateral margins. In front of the fovea the carapace is rather strongly raised, and there is no distinct groove between the cephalic and thoracic regions; and indeed all the normal radiating grooves of the carapace are obsolete. The whole carapace is laterally compressed except in the posterior fifth. Ocular area almost but not quite as long as two-fifths of the distance from the centre of the fovea to the anterior margin of the carapace: frontal eyes about one-sixth of a diameter apart, considerably larger than the anterior medians: frontal quadrangle about as wide in front as behind: posterior row of eyes subequally spaced, or the distance between lateral and median slightly less than the distance between the medians: posterior margin of posterior row situated in a straight or slightly recurved line: posterior lateral eyes long and large, being decidedly larger than the anterior medians.

Legs. Tibia I slightly longer than metatarsus I, and not incrassated, its distal tubercle bearing a short pointed process. Metatarsus I not incrassated nor bent at any point, and viewed from the side it appears only very slightly bowed: on its outer side is a row of five spines, but on the inner side there are no spines nor stout bristles except the two spines at the apex. Tarsus I scopulate but not very strongly, without spines on either side. Patella III

with about twenty-four or twenty-five short spines on the anterior side, including those on the distal edge, also with a strip of about seven rather longer ones dorsally: IV with short spines over $\frac{3}{4}$ — $\frac{5}{8}$ of the length of the segment. Coxa III with a band of stiff setae on its post-ventral border, but the stiff setae are sparsely scattered in the distal half of the segment, and the band is only well defined in the basal half.

Pedipalp. Tibia about twice as long as deep, the excavation with the usual strip of short spines, which may be quite broken in the middle or more or less continuous. Tarsus with a group of stout spines at the apex superiorly.

Chelicerae. The main row of teeth includes 5–7 large teeth and one or two minute ones at the base of the series: in addition, there is a single large tooth on the inner side of this series, adjacent to the one or two minute teeth.

Colour. Carapace and appendages yellowish brown: abdomen superiorly somewhat infuscated.

Measurements. Total length 13, length of carapace 4.8, breadth of carapace 3.65, length of tibia I 5, of metatarsus I 4.4, of first leg 24.4, of second leg 19.6, of third leg 17.8, of fourth leg 25.5.

FEMALE.

The principal characters of the female are as follows: coxa III with a tuft of stiff setae on its post-ventral border, but the tuft is only compact in the basal half and even there is not so dense as in the females of *hirsutus*: sternum with two pairs of sigilla, the first pair being slightly removed from the margin: dentition of chelicerae as in the male: length of ocular area very slightly more than, or subequal to, two-fifths of the distance between the anterior margin of the carapace and the middle of the fovea: frontal eyes about one-quarter of a diameter apart and situated on a common tubercle which is grooved above, the frontal quadrangle being considerably broader in front than behind: posterior median eyes only a trifle nearer to the laterals than to each other, the posterior margins of the posterior row in a slightly recurved line: anteriorly, patella IV is spined over $\frac{3}{4}$ — $\frac{5}{8}$ of its length: the anterior margin of the carapace is well marked off from the lateral margin: the pair of long setae behind the ocular area is situated midway between the middle of the fovea and the anterior margins of the anterior median eyes. Total length 15.5, length of carapace 5.2, breadth of carapace 4.5.

Acanthodon hirsutus sp. nov.

The types of this species are four adult males collected at East London by Mr F. Cruden during June 1915. The species is related to *A. microps* mihi from Grahamstown, to *A. gracilipes* sp. nov., and to the Kentani species *A. kentanicus* Purcell. The adult males of these species—except that of *kentanicus* which is unknown—can easily be distinguished by the characters mentioned in the accompanying key, but the females are less sharply differentiated, and the only available points of distinction seem to be those presented by the fringe of stout setae on the inferior surface of coxa III and the ocular characters.

Carapace. Anteriorly it is truncated, the anterior and lateral margins being well differentiated. Except on the head region, the surface is depressed. The groove between cephalic and thoracic regions is well defined, over a portion of its length at least, and other radial grooves are present on the carapace.

Ocular area about two-fifths as long as the distance from the anterior margin

of the carapace to the centre of the fovea: frontal eyes about one-quarter of a diameter apart; posterior laterals nearer to the posterior medians than are the latter to each other: posterior margins of posterior row in a slightly procurved line.

Legs. Tibia I subequal to metatarsus I in length, and only slightly incrasated: distal tubercle bearing a short pointed process. Metatarsus I is slightly bowed when seen from the side: there is no marked bend or incrasation in its course, although there is faint indication of a bend near the base on the inner side but no spine in that neighbourhood: on the inner surface there is a number of stout bristles or spiniform setae which are only absent near the base of the segment, and distally there is usually a spine in addition to the one on the apical edge. Tarsus I strongly scopulate, with one or two spines on each side or such spines may be absent. Patella III with about 11-18 short spines on the anterior side, including those at the distal edge, but without any distinct spines dorsally though several stiff bristles occur there: IV with short spines over about one-half of the length of the segment and an odd one or two may also occur in the distal half of the segment. Coxa III with stiffish setae on its post-ventral border, the setae being sparsely scattered in the distal half and more densely aggregated proximally.

Pedipalp. Tibia about twice as long as deep, the excavation margined by a more or less continuous band of spines. Tarsus with one or several weak spines at the apex superiorly.

Colour. Carapace and legs pale yellowish brown, abdomen somewhat infuscated superiorly.

Measurements. Total length 9.8, length of carapace 4.4, breadth of carapace 3.5, length of tibia I 3.25, of first leg 18, of second leg 16, of third leg 13.8, of fourth leg 19.

FEMALE.

The principal characters of the female are as follows: coxa III with a dense broad tuft of stiff setae on its post-ventral border, the setae being fairly closely disposed even in the distal half of the segment: ocular area hardly two-fifths as long as the distance from the anterior margin of the carapace to the centre of the fovea, and the pair of long setae behind the ocular area is situated nearer to the anterior margin of the anteromedian eyes than to the centre of the fovea: frontal eyes about $\frac{1}{3}$ - $\frac{1}{4}$ of a diameter apart, situated on a low tubercle which is grooved above, the frontal quadrangle broader in front: posterior medians nearer to the laterals than to each other: posterior margins of posterior row of eyes approximately in a straight line: anteriorly, patella IV is spined over $\frac{2}{3}$ - $\frac{4}{5}$ of its length: anterior margin of carapace well marked off from lateral margin: two pairs of sternal sigilla, the anterior pair submarginal. Total length 20, length of carapace 6.7, breadth of carapace 5.25.

Acanthodon nigropilosus sp. nov. (text fig. 3 a and b)

Types. An adult male and female from Arnheimburg, Carolina, collected by Mr A. Roberts (19. ix. 1915). The specific name has reference to the strong development of blackish hairs on the appendages and sternum of the female.

The characters of the adult male are as follows:

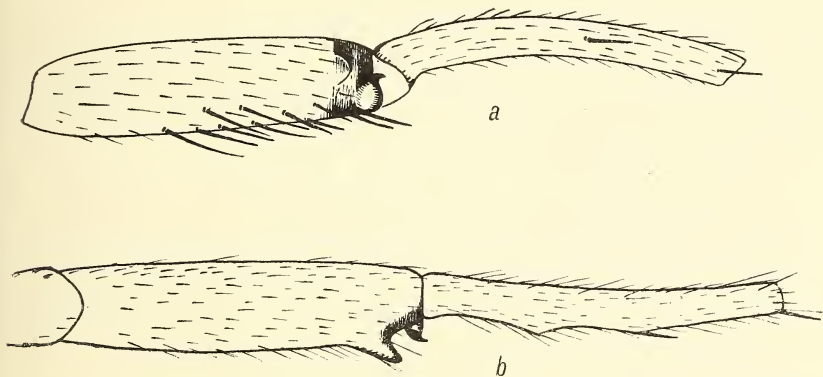
Colour. Carapace and appendages for the most part pale yellowish brown: abdomen purplish above: the membrane adjoining the margins of the carapace is also strongly tinted with purple.

Pedipalp. The tibia is about twice as long as deep, its excavation being

bordered by a continuous strip of spinules: altogether there are about thirty-two spinules. Tarsus with one strong spine and two weaker ones at the apex superiorly.

Chelicera. There is a single series of teeth, at the base of which on the inner side is a single moderate sized tooth: the single series comprises seven or eight teeth of which only the distal five are of moderate size, those at the base of the series being quite small.

Legs. Tibia I slightly shorter than metatarsus I, swollen but not greatly so: the two tubercles near the apex are large, but the distal one has only quite a short black pointed process at its apex: inferiorly, towards the posterior side, there is a strip of about seventeen spines, including those on the mesial part of the lower surface. Viewed from the side, metatarsus I is distinctly bowed: from above, it presents a distinct angular bend on the inner side at a point situated about one-third of its length from the base, and at a point two-thirds of the distance along the segment there is another bend but only very slight and hardly noticeable except as the point of origin of a spine, the only spine on the inner side except that at the apex: inferiorly there is a row of three



Text fig. 3. *Acanthodon nigropilosus* sp. nov. Tibia and metatarsus of first leg (left side), (a) from the mesial side, (b) in dorsal view.

spines towards the outer side and two at the apex. Tarsus I with three spines on the anterior side and five on the posterior side, inferiorly with rows of setae but not scopulate. Tarsus II–IV all scopulate to the base. Band of spinules on anterior side of patella IV only present in the basal half of the segment and comprising about six or seven spinules. Patella III with about 6–9 spinules on the anterior side, but none on the dorsal surface except one or two on the distal edge.

Carapace. The length of the ocular area is barely one-third of the distance from the anterior margin of the carapace to the fovea. Frontal eyes about one-fifth of a diameter apart; anterior medians subequal to the frontals: posterior row in a procurved line, the medians being rather more than $1\frac{1}{2}$ diameters apart and a little more than a diameter distant from the laterals.

Measurements. Total length 9.5 mm., length of carapace 3.65, of tibia of first leg 2.75, of metatarsus of first leg 3.1.

The chief characters of the adult female are as follows:

Legs. Coxa III with slender setae along the post-ventral border. Tibia II with 10–12 spines on its anterior side. Patella IV with the band of spines on

its anterior side stretching only half-way along the segment though an odd spine occurs in the naked area of the distal half. Tibia IV without spines on the anterior surface.

Chelicerae with a single row of teeth below and at the base thereof a single rather large tooth internally situated.

Ocular area subequal to or very slightly longer than one-third of the distance from the anterior margin of the carapace to the fovea: frontals about one-sixth of a diameter apart, not projecting strongly from the front margin of the carapace: posterior medians only very slightly nearer to the laterals than to each other, the distance between the medians about equal to $1\frac{1}{2}$ diameters. The head region of the carapace is marked with three longitudinal blackish lines, two of them tangential to the posterior-lateral eyes, and one of them being median: posteriorly they terminate at a point about midway between the ocular area and the fovea: the membrane at the margins of the carapace is also deeply pigmented.

Measurements. Total length 15, length of carapace 4.75, breadth of carapace 3.75.

The female resembles that of *A. crudeni* mihi, but, apart from the several minor structural differences which might not seem sufficient for specific separation on female characters alone, the two may be easily distinguished by the darker pigmentation of *nigropilosus*. The males are different in the characters of the first metatarsus, which in *crudeni* is not bent and is rather more elongated than that of *nigropilosus*.

Acanthodon mossambicus sp. nov.

The types are two adult males from Magude, Portuguese E. Africa, collected by Mr G. van Dam (2. vii. 1915). The characters are as follows:

Colour. Carapace and appendages pale yellowish brown, abdomen infuscated.

Sternum with three pairs of sigilla, the first pair submarginal.

Chelicera. A single row of teeth, at the base of which on the inner side is one large tooth, the basal teeth of the main series being small.

Pedipalp. The tibia is about twice as long as deep, the excavation bordered by stout spines or spinules which however are absent in the middle: the distal group includes about 5-8 spines and the proximal group about 8-10.

Tarsus, viewed from above, presenting a distinct lobe on each side distally.

Legs. Tibia I very slightly shorter than metatarsus I, swollen but not very greatly so: the two tubercles near the apex are large and the distal one bears a long black flattened process blunt at the tip: inferiorly, it carries a row of four spines on the outer side.

Metatarsus I almost straight, with one or two strong spines on the outer side inferiorly or none at all apart from those at the apex. Tarsus I with no distinct spines on the anterior side and with one or none on the posterior side, but on each side long spiniform setae occur: inferiorly it is thinly scopulate. Tarsi II-IV all scopulate to the base. Band of spinules on anterior side of patella IV stretching over about $\frac{3}{5}$ - $\frac{2}{3}$ of the length of the segment and comprising about eighteen spinules. Patella III with about 12-14 spinules on the anterior side, including those on the distal edge, but on the dorsal surface there are only one or two apart from those at the apex. Coxa III with a patch of stiffish setae on the inferior surface posteriorly.

Carapace. Length of ocular area subequal to, or very slightly greater than, one-third of the distance from the anterior margin of the carapace to the fovea. Frontal eyes about one-fifth of a diameter apart, very slightly larger than the anterior medians: posterior row in a procurved line, the medians being about $1\frac{3}{4}$ diameters apart and about a diameter distant from the laterals.

Total length 13.25, length of carapace 4.75, of tibia of first leg 4.1, of metatarsus of first leg 4.5.

There is another adult male example agreeing closely with the above from the junction of the Limpopo and Olifants Rivers, P.E.A., also collected by Mr G. van Dam (6. vii. 1915). In this example the third pair of sternal sigilla is only very faintly indicated: the eyes are a trifle larger than in the types, the anteromedians being subequal to the frontals: the fourth patella carries only about twelve spinules on its anterior side.

The species is no doubt related to *A. pectinipalpis* Purc. described from Zululand; the characters of the posterior row of eyes should serve to distinguish the two forms.

FEMALE.

The collection includes no females from Magude, but a series of small specimens from the junction of the Limpopo and Olifants Rivers and a single one of somewhat larger size from Papai are no doubt referable to *mossambicus*. The principal characters of the series are: sternum trisigillate: a strip of coarse setae on the post-ventral border of coxa III: ocular area slightly exceeding in length one-third of the distance from the anterior margin of the carapace to the fovea: frontal eyes about one-quarter of a diameter apart, or very slightly more: posteromedian eyes rather more or rather less than two diameters apart and about $1\frac{1}{2}$ diameters, or less, distant from the posterolaterals: patella IV only spined in its basal half or three-fifths anteriorly. The ocular characters vary according to the size of the individual, the frontals being always comparatively close together, and the posterior medians being always nearer to the laterals than to each other.

Total length of Papai specimen 18.5 mm., length of carapace 5.8, breadth of same 4.7: the largest specimen of the other series has a carapace 4.75 long.

Acanthodon hepburni sp. nov.

Type. A single adult male example from Majuba Nek, Herschel dist., C.P., collected by Mr Ivan Hepburn, B.A.

It is closely related to *A. spiricola* Purcell, found at Kentani, but can be distinguished at once by the characters of the ocular area.

Carapace. Anterior margin truncated. Radiating grooves obsolete, represented by short shallow depressions. Ocular area about as long as one-third of the distance from the anterior margin of the carapace to the centre of the fovea. Frontal eyes almost one-third of a diameter apart, and fairly large, being decidedly larger than the anteromedians, the frontal quadrangle being quite as broad in front as behind: dorsal cleft between the two frontal eyes fairly deep. Posterior median and posterior lateral eyes closely approximated, the distance between the medians being more than twice the distance between median and lateral: the posterior lateral moderately long, but smaller in area than the anterior median.

Legs. Tibia I slightly longer than metatarsus I and not incrassated, its distal tubercle bearing a short pointed process. Metatarsus I is decidedly

bowed in side view, and, seen from above, appears very slightly bent outwards at a point near to the base: on the outer side is a spine at the apex, and a few bristles or stiff setae along the length of the segment: on the inner side is a series of bristles, but no spines except one at the apex. Tarsus I thinly scopulate and without spines. Patella III with five or six short spines on the anterior side superiorly, including those on the distal edge, but with none dorsally except for a short weak one near the distal edge. Patella IV with five short spines on the basal portion of the segment. Coxa III with a few stiff setae on the post-ventral border, but these setae do not form a conspicuous tract.

Pedipalp. Tibia about twice as long as deep, the excavation armed with a continuous strip of short spines: tarsus with one or two weak spines at the apex superiorly.

Chelicerae. There is a main row of seven teeth and near the base of the series on its inner side is a single large tooth.

Colour. Carapace and appendages yellowish brown: abdomen superiorly slightly infuscated.

Measurements. Total length 10 (approx.), length of carapace 3.5, breadth of carapace 2.75, length of tibia of first leg 3, of metatarsus of first leg 3.25, of first leg 16.5, of second leg 13.75, of third leg 11.5, of fourth leg 15.5.

FEMALE.

Four female examples from the same source present the following characters: coxa III with a thin and inconspicuous strip including a few stiffish setae on its post-ventral border: two pairs of sternal sigilla, the first pair being slightly removed from the margin: dentition essentially similar to that of the male, the main row comprising four large distal teeth, two small teeth and two minute proximal teeth, internal to which is situated a single large tooth: length of ocular area very slightly less than one-third of the distance between the anterior margin of the carapace and the centre of the fovea: frontal eyes about $\frac{3}{4}$ -1 diameter apart, situated on a common tubercle which is deeply grooved above, the frontal quadrangle being about as broad behind as in front: posterior median eyes decidedly nearer to the laterals than to each other: a line tangential to the anterior median and posterior lateral eyes in front is very markedly recurved, and the hind margins of the posterior row are in a procurved line: anteriorly, patella IV is spined in the basal half: anterior margin of carapace fairly well marked off from the lateral margin and mesially it may project forwards considerably: the pair of long setae behind the ocular area is situated a little further from the middle of the fovea than from the anterior margin of the anterior median eyes: general colouration olive brown. Total length about 15.5, length of carapace 6, breadth of carapace 4.7, distance from centre of fovea to anterior margin of carapace 3.75, distance from centre of fovea to hind margin of posterior median eyes 2.55.

The female of *A. spiricola* is very similar thereto, but the ocular area is still shorter, and the line joining the anterior margins of the anterior median and posterior lateral eyes is practically straight. A full sized specimen has the following measurements: length of carapace 6.2, distance from centre of fovea to anterior margin of carapace 3.9, distance from centre of fovea to hind margin of posterior median eyes 2.85.

Preliminary Key to the S. African species of the genus Acanthodon
(= *Ctenolophus* Purcell + *Gorgyrella* Purcell) based on the characters of
adult Males.

1. *Tibia I longer than metatarsus I.*

(a) *Tibia* of palp about twice as long as deep, the excavation with a more or less continuous strip of short spines arranged in a single row in the middle. Band of spines on anterior surface of patella IV stretching the whole length of the segment but in the distal three-fifths there is only a single row and the distal spine is a good distance from its neighbour; III with about eighteen spinules anteriorly, including those on the distal edge. Ocular area extending over about one-third of the distance between the anterior margin of the carapace and the fovea: frontal eyes about one-quarter of a diameter apart or a trifle more: posterior medians two diameters apart or slightly more and $1\frac{1}{2}$ diameters or a little less distant from the posterior laterals. *Tibia I* 4.25 mm. long, metatarsus I 3.75 mm. (loc.?). *A. thorelli* O. P. Cambr.¹

(b) Frontal eyes one-sixth of a diameter apart. (For other characters see description.) [East London.] *A. gracilipes* sp. nov.

2. *Tibia I subequal to metatarsus I.*

A. With two pairs of sternal sigilla.

(a¹) *Tibia I* only slightly incrassated, the distal tubercle bearing a short black pointed process: metatarsus I practically straight and not incrassated or bent at any point: tarsus I only weakly scopulate, without spines on either side or only one weak one posteriorly. Patella III with a band of about twenty spines on its anterior surface and a strip of six or seven weaker ones dorsally, apart from those on the distal edges; IV with short spines over $\frac{3}{4}$ — $\frac{4}{5}$ of the length of the segment. Coxa III with a band of stiffish setae along its post-ventral border. *Tibia* of palp a trifle more than twice as long as deep, the excavation bordered by a continuous band of spinules: tarsus with a group of spines at the apex superiorly. Ocular area extending a little more than one-third of the distance from the anterior margin of the carapace to the fovea: frontal eyes about one-quarter of a diameter apart, larger than the anterior medians, the quadrangle formed by these four eyes being very slightly wider in front. Length of carapace 5.3 mm., of *tibia I* 5.15. (Grahamstown.)

A. microps Hewitt.

(b¹) Similar to *microps* but smaller (length of carapace 4.5), and differing as follows: metatarsus I seen from the side is distinctly bowed, and the inner lateral surface carries a number of stout bristles or spiniform setae (wanting in *microps*), only absent near the base of the segment: tarsus I strongly scopulate. (East London.) *A. hirsutus* sp. nov.

(c¹) Metatarsus I very distinctly curved proximally when seen from the side, concave also internally at the base and slightly incrassated internally at the end of the basal fourth, the eminence bearing one short spine and 3-4 stout spiniform setae. Excavation of *tibia* of palp furnished with a broad semicircular band of short close-set spinules. Area formed by the frontal and anterior median eyes very slightly wider in front than behind. (Durban.)

A. cregoei Purcell².

¹ I have examined the type in the British Museum.

² Species unknown to me.

B. With three pairs of sternal sigilla.

(*a*ⁱⁱ) Metatarsus I only very slightly bowed, not bent nor incrassated in any part of its length, carrying on the outer side inferiorly a row of five or six spines including those at the apex. Tibia I only a little stouter than the metatarsus, its distal tubercle bearing a long pointed black process. The spines margining the excavation of the tibia of the palp not forming a continuous band, the strip being interrupted in the middle. Coxa III with a band of scattered stiffish setae along its post-ventral border, those more basally situated being shorter and more or less subspiniform. (Magaliesberg, near Pretoria.) [It is related to the species under 3 A but the process on the distal tubercle of tibia I is more slender.] *A. monticola* Hewitt.

(*b*ⁱⁱ) The process on the distal tubercle of tibia I is strongly flattened and obtuse at the apex. Coxa III without subspiniform setae in the band of setae on its post-ventral border. (Pigg's Peak.) *A. monticoloides* sp. nov.

3. *Tibia I shorter than metatarsus I* (only very slightly so in *crudeni*).

A. Three pairs of sternal sigilla. Distal tubercle of tibia I bearing an elongated flattened black process, rounded or blunt at the end.

(*a*ⁱⁱⁱ) Metatarsus I slightly bowed when viewed from the side but not bent nor incrassated in any part of its length. Frontal eyes about one-third of a diameter apart or a trifle less, the frontal quadrangle of the ocular area broader behind than in front, the posterior medians being much nearer to the laterals than to each other. (Alicedale.) *A. abrahami* Hewitt.

(*b*ⁱⁱⁱ) Metatarsus I arcuate in its basal half, with concavity looking inwards, strongly bent in the middle. Frontal eyes quite separate, about one-half a diameter or more apart, the frontal quadrangle being appreciably wider behind. (Jansenville.) *A. ochreolum* Pocock.

(*c*ⁱⁱⁱ) Metatarsus I with a distinct bend at a point about one-third of its length distant from the apex. Coxa III with a patch of sharp rather weak spinules in its basal half posteriorly below. (Roodeplaat, near Pretoria.) *A. schreineri minor* subsp. nov.

(*d*ⁱⁱⁱ) Metatarsus I almost straight or very slightly curved, without concavity or thickening near the base on the inner surface. Excavation of tibia of palp armed with a semicircular band of stout spines. Frontal eyes very close together, the area formed by the frontal and anterior medians being parallel sided or wider behind, the posterior medians almost or quite as far from the laterals as from each other. (Zululand.) *A. pectinipalpis* Purcell¹.

(*e*ⁱⁱⁱ) Metatarsus I almost straight. Excavation of tibia of palp not armed with a continuous strip of spines, but with a distal group of 5-8 and a proximal group of 8-10. Frontal eyes about one-fifth of a diameter apart: posterior medians about $1\frac{3}{4}$ diameters apart and about a diameter distant from the laterals. (Magude, P.E.A.) *A. mossambicus* sp. nov.

¹ The Transvaal Museum has an example from Malelane which is perhaps referable to this species. Metatarsus I has a slight but distinct bend about the middle of its length, and on the outer side is a row of three or four spines. The excavation on the palpal tibia has a distal group of 8-10 spines and a basal group of ten or eleven. Posterior median eyes quite $1\frac{1}{2}$ diameters distant from the laterals, and about $1\frac{3}{4}$ diameters apart: frontals about one-quarter of a diameter apart. Length of carapace 6.75. [Coll. 24. vi. 1916 by Mr A. Roberts.]

B. Only two pairs of sternal sigilla. The black process on the distal tubercle of tibia I is short and pointed.

(a^{iv}) Metatarsus I not incrassated internally at any point, but seen from the side it is curved near the base. Excavation of tibia of palp with a continuous band of short spines. Ocular area extending scarcely more than one-quarter of the distance from the anterior margin of the carapace to the fovea: frontal eyes separated, about two-fifths of a diameter apart, the frontal quadrangle being slightly wider behind, the frontal and antero-median eyes subequal in area. (Kentani.)
A. spiricola Purcell.

(b^{iv}) Similar to *spiricola*, but ocular area a little longer, reaching almost one-third of the distance from the anterior margin of the carapace to the centre of the fovea: frontal eyes decidedly larger than the anteromedians. (Majuba Nek, Herschel dist.)
A. hepburni sp. nov.

(c^{iv}) Metatarsus I decidedly curved and there is a slight incrassation on the inner side near the base, this thickened region being without spines although superiorly and laterally stiffish bristles extend therefrom up to near the apex of the segment. Excavation of tibia of palp with a more or less continuous band of short spines, weak in the middle. Frontal eyes very close together, the area formed by the frontals and anterior medians being much wider behind than in front. Ocular area extending about one-third of the distance from the anterior margin of the carapace to the fovea. Seen from above, the lateral and front margins of the carapace form a fairly sharp curve anteriorly, the anterior margin not being strongly truncated. A small form with carapace only 3 mm. long. (Based on two specimens collected at East London by Mr F. Cruden, the type of the species occurring near Grahamstown.)
A. flaveolum Poc. (var.)¹.

(d^{iv}) Metatarsus I slightly incrassated internally near the base, the thickened region being beset with stiff bristles but no spines: seen from the side it is curved near the base. Band of short spines bordering the excavation of the tibia of the palp broken a little in the middle. Carapace not strongly truncated anteriorly. Frontal eyes very close together, the area formed by frontals and anterior medians being very distinctly wider behind than in front: ocular area a trifle longer than one-third of the distance from the anterior margin of the carapace to the fovea. (Alicedale.)
A. crudeni Hewitt.

(e^{iv}) Metatarsus I with a weak but distinct angular bend on the inner side at a point about one-third of its length from the base, and at a point two-thirds of the distance along the segment is another bend but only very slight and hardly noticeable except as the point of origin of a spine. Tibia I swollen but not greatly so. Tarsus I with three spines on the anterior side and five on the posterior side. Frontal eyes about one-fifth of a diameter apart, the frontal quadrangle being decidedly wider behind than in front. (Arnhemburg, Carolina dist.)
A. nigropilosus sp. nov.

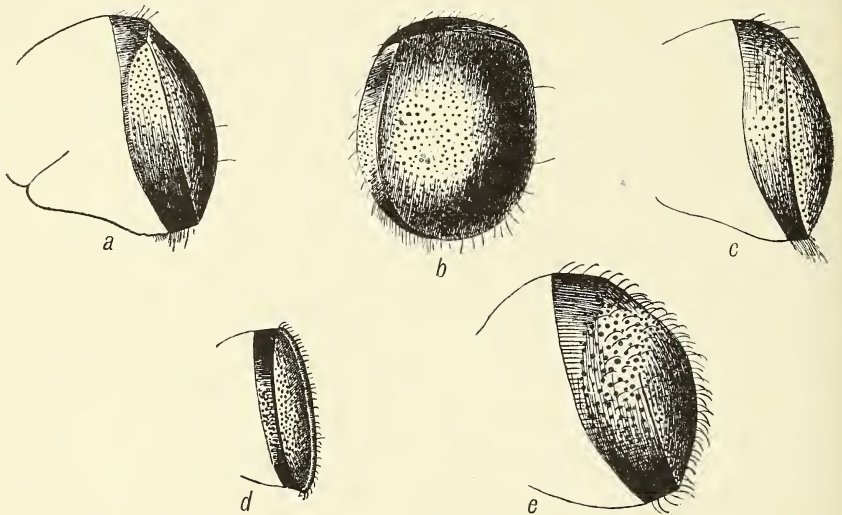
¹ The female closely resembles *flaveolum* from Grahamstown, the frontal eyes being very near together on a strongly raised common tubercle which projects forwards anteriorly and has no median cleft superiorly or only a slight one. The length of the ocular area is about one-third of the distance from the anterior margin of the carapace to the fovea, being very slightly greater than in typical *flaveolum*.

Heligmomerus caffer Purcell ? sp.

A very fine female example was taken at Ma Shangani (4. viii. 1916) by Mr G. van Dam. The carapace is 13.9 mm. long and 12.75 broad. The distance between the posterior median eyes is almost twice as great as the distance between posterolateral and posteromedian. It thus appears to be different from the Moorddrift and Bulawayo forms previously recorded.

Galeosoma mossambicum sp. nov. (text fig. 4 a and b).

Types. A series of female examples from Mazambo and from Papai, localities in Portuguese East Africa, collected by Mr G. van Dam in July 1915. The species is closely related to *G. vandami* mihi (text fig. 4 c), from the neighbourhood of Leydsdorp, differing therefrom in the form of the shield.



Text fig. 4. *a*, *Galeosoma mossambicum* sp. nov. Abdominal shield in side view. *b*, *Galeosoma mossambicum* sp. nov. Abdominal shield in dorsal view. *c*, *Galeosoma vandami* Hwtt. Abdominal shield in side view of specimen from Griffin Mine, Leydsdorp. *d*, *Galeosoma planiscutatum* sp. nov. Abdominal shield in half side view. *e*, *Galeosoma coronatum* Hwtt. Abdominal shield in side view.

Abdominal shield. The upper surface is lightly and fairly uniformly convex: its outline is almost a regular oval, except that in front there is a distinct angle on either side, the front portion being less strongly curved than the corresponding portion posteriorly. The marginal surfaces are well marked off from the upper surface all round, the line of junction being marked by a distinct ridge which in front is quite sharp though not definitely upturned: the ridge is only a little stronger posteriorly than anteriorly. Viewed from the side, the marginal surface is considerably deeper in the middle than in front or behind. This marginal surface is composed of two portions fairly sharply marked off from each other: the anterior portion is not conspicuously punctured nor glossy, being closely covered with short fine hairs; the posterior portion, which extends forwards on either side as far as the anterior angles of the boundary of the upper surface, is glossy and coarsely punctured. The anterior dull portion which occupies the whole depth of the marginal surface anteriorly is continued backwards along the sides of the shield as a thin strip at the base

of the glossy portion, the two surfaces blending in the hind quarter of the shield. At the sides, the glossy portion is obliquely inclined in relation to the dull basal strip or to the upper surface with which latter it forms an obtuse angle. The upper surface of the shield is almost completely devoid of hairs: several occur on the lateral edges and one or two on the internal portions of the surface. The glossy part of the marginal surface is also devoid of hairs except in its posterior half where basally a fairly dense group of bristly hairs occurs on each side. Dorsally, the soft skin of the abdomen immediately anterior to the shield presents several transverse rows of closely approximated short fine setae and ventrolaterally in the immediate neighbourhood of the shield there are numerous obliquely arranged lines of setae.

Measurements. Total length 16, length of carapace 7, breadth of carapace 5.2, length of shield measured along the upper surface 8.4, breadth of shield measured across upper surface 6.3, anterior depth of shield 1.4, posterior depth of shield 1.4, greatest depth of shield (measured about the middle point of its length) 2.2.

The adult specimens from Papai are noteworthy in that the glossy lateral and posterior surfaces of the shield are completely devoid of hairs which is not the case in any of the Mazambo examples.

Galeosoma planiscutatum sp. nov. (text fig. 4 d).

The types of this form are four rather small female examples from Buffelsdraai, Pretoria dist., collected by Mr A. Roberts (17. iv. 1916). These specimens are without doubt adult, although considerably smaller than the adults of other known species. The form of the shield of any species though very constant in adult specimens collected in one locality, may vary considerably according to the maturity of the individual and eventually it may be found impossible to distinguish between the various species except in the fully adult stages. The species here described belongs to the group which includes *pallidum*, *pilosum* and *hirsutum*.

Shield. The upper surface is broadly oval or almost round in outline and quite flat, except near the margin where it is strongly upturned all round: it is fairly regularly covered with shallow punctuations the largest of which are a pair situated at points about one-third or two-fifths of the total length distant from the posterior end, the distance between these sigilla being about half the distance of either from the margin of the surface or at any rate not so great as that distance: anteriorly, there may or may not be another pair of sigilla but in any case they are not so distinct, their distance apart being equal to or somewhat greater than their distance from the posterior pair but much greater than their distance from the margin of the surface. The general surface carries numerous short fine setae but no long ones: on the upturned edge however there are longer stiffish setae. The marginal surface is fairly uniform throughout, being pitted and somewhat roughened, not polished: in the anterior half it is hairy, but only very sparingly so in the posterior half except just at the posterior extremity: it is for the most part at right angles to the upper surface except posteriorly where the two surfaces are more acutely inclined to each other. The depth of the marginal surface is relatively small and is least posteriorly. In front of the shield superiorly the soft skin of the abdomen presents well defined rows of setae.

Carapace. There is a very long stiff bristle arising from between the anteromedian eyes, a pair of shorter and weaker ones between the posteromedians, a single weak one just behind the frontal eyes, and a pair of long ones behind

the ocular area just about midway between the median weak bristle and the fovea.

Measurements. Length of carapace 4·7, breadth of carapace 3·6, length of upper surface of shield 6·5, breadth of upper surface of shield 5·8, anterior depth of shield 1·2, posterior depth of shield ·8.

Mr A. Roberts has collected at New Mukelneuk two quite small examples of *G. hirsutum* which in the flatness and shape of the upper surface closely resemble the species now described: they differ in the pronounced hairiness of the shield and in the much greater depth of the marginal surface. The resemblance to *planiscutatatum* is still more pronounced in three minute specimens from New Mukelneuk: these have the flat upper surface quite devoid of stiff hairs though fairly long delicate hairs occur there.

A flat upper surface, bounded all round by an upturned edge, is also met with in some specimens from Lyttelton Junction and from Garstfontein: these differ from *planiscutatatum* in the greater depth of the marginal surface and in the absence of distinct rows of setae on the upper surface of the abdomen, anterior to the shield.

Galeosoma vandami Hwtt. var. nov. *circumjunctum* (text fig. 4 c, Pl. IV, figs. f and g).

This form is founded on two subadult and one juvenile specimen taken at N'Wanedzi River, Zoutpansberg dist., by Mr G. van Dam (18. vii. 1916). It differs from the typical form of *vandami* in that the ridge separating the two surfaces is quite complete all round, being well developed, upturned, and quite sharp anteriorly. The upper surface is also a little more flattened than in that form, but a more characteristic feature of the present specimens is the occurrence of three pairs of long bristly hairs, each hair arising from a slight eminence on the dorsal surface: the position of these is indicated on Pl. IV, figs. f and g.

Apart from these, the upper surface of the shield is devoid of long hairs, though numerous very fine short hairs occur there. Similar long hairs occur in the typical form of *vandami*, but the hair pits from which they arise are not raised or scarcely so: sometimes four pairs of stiff setae are present.

Measurements. Total length 18; length of upper surface of shield 8; breadth of upper surface of shield 7·5; depth of marginal surface anteriorly 1·5; depth of marginal surface posteriorly 1·15; distance of base of first hair from anterior margin of shield 2·8, of second hair from anterior margin 5, of third hair 6·4.

I take this opportunity of giving more complete measurements of the shield of *vandami* than were included in the description of that species: specimen from Griffin Mine (Pl. IV, fig. e), length of upper surface of shield 8·5, breadth of upper surface 7·5, depth of marginal surface anteriorly 1·9, depth of marginal surface posteriorly ·8, depth of marginal surface about the middle of its length 1·7.

In a series of six specimens from Gravelotte the ridge of the shield is usually quite obsolete anteriorly: in one or two cases it is weakly indicated, the marginal region in front, as elsewhere, including a glossy and punctured secondary surface as well as the primary marginal surface.

Two specimens referable to this species have been taken recently at Ngwaribango, Letaba River, about twenty-five miles N.W.N. of Leydsdorp: they are approximately typical, but the shield is large and the marginal surfaces well defined and deep although the ridge of separation is not stronger

than usual: the depth of the marginal surface at about the middle of its length is 2.15, and at this point the two surfaces are well inclined: the punctuations of the marginal and dorsal surfaces are not very coarse and do not tend to merge in pairs forming coarser pits.

A single example from Shiny (about twenty-seven miles E. of Gravelotte) probably represents a distinct variety. It is more coarsely punctured on the marginal and dorsal surfaces than in other forms of the species, and the punctures tend to run together into larger pits. The marginal surfaces are not deep, and the ridge of separation is absent anteriorly. The depth of the marginal surface at about the middle of its length is 1.8, the two surfaces being very obliquely inclined to each other at this point: greatest length of shield 9.3.

A fairly typical example was taken at Silwane (about thirty-three miles E. of Gravelotte) by Mr G. van Dam. This was accompanied by two very small specimens which differ from the larger adult example in presenting sharply defined and continuous marginal surfaces, and very flat dorsal surfaces: three or four pairs of stiff setae occur on the dorsal surface as in adults.

Galeosoma pluripunctatum sp. nov. (Pl. IV, fig. d).

The type is a single adult female example from Mooi Vley, Rustenburg dist. (W. Powell). It is closely related to *schreineri* from De Aar, and *vandami* from the neighbourhood of Leydsdorp, and may be regarded as a connecting link between those two species. The upper surface of the shield is however more closely and finely pitted than in either of the above, and this constitutes the most distinguishing character of the species. That surface is quite devoid of long stiff hairs or bristles except for a pair in the anterior half—in *schreineri* long stiffish hairs are fairly numerous—and except for the punctures is levelled smooth and glossy. The marginal ridge between the upper and lateral surfaces is on the whole like that of *schreineri*: posteriorly it is sharp and slightly up-turned, whilst anteriorly it is practically obsolete as a distinct ridge though there is a well defined angle between upper and marginal surfaces, this angle amounting to only a trifle more than 90° mesially. (In *schreineri* (Pl. IV, fig. c) the ridge itself though blunt is perfectly distinct anteriorly and the anterior angle mesially is considerably more than 90° : in typical *vandami* the ridge is absent and the angle not well defined.) The upper surface of the shield is only moderately convex, being more flattened than in typical *vandami* or *schreineri*. The distance between the posterior median eyes is only a trifle greater than the distance between the posterior median and posterior lateral: thus it approaches *schreineri* rather than *vandami*, apparently. However, ocular characters are not altogether trustworthy when dealing with a limited amount of material.

Measurements. Total length 17, length of upper surface of shield 8.9, breadth of same 8.25, depth of marginal surface anteriorly 1.75, depth of same posteriorly 1.1, depth of same at the middle of its length 1.65.

Galeosoma coronatum Hewitt (text fig. 4 e, Pl. IV, fig. a).

Two female examples, representing a fairly distinct variety, have been taken on the town lands adjoining the experimental farm at Potchefstroom (G. van Dam and A. Roberts). In the original description of this species it should have been stated that a true primary marginal surface is present on the shield, but is moderately deep only in front where it is clearly separated from the more glossy coarsely punctured adjacent surface, although a sharply defined

boundary ridge is not present: this marginal surface rapidly narrows in passing ventralwards but is continuous throughout as a more or less definite though very narrow marginal strip free of coarse punctuations. There is also a much deeper secondary marginal surface, very coarsely pitted, which in the posterior half of the shield is delimited by a distinct ridge in the type: it is glossy and hairy like the dorsal surface, of which indeed it is a part: in the Potchefstroom specimens, however, it is less noticeable owing to the absence of the ridge of separation between dorsal and secondary marginal surfaces, but, on the other hand, the primary marginal surface is rather more sharply defined but not deeper than in the type. The shield of these Potchefstroom specimens is decidedly more hirsute than in the type, thus approaching *hirsutum*, where, however, the relationships of dorsal and lateral surfaces are quite different. Although the posterior ridge is absent in this variety yet, a deep secondary lateral surface may be recognised especially posteriorly, and in fact, as in the typical form, constitutes a complete but very indistinct girdle, the curvature of the superior surfaces being greatest along the subcircular line of junction: in the smaller example, these two surfaces in the mesial line posteriorly may be said to be angularly inclined to each other at about 120° , the secondary marginal surface being not curved, but in the larger specimen the angle is greater, and the two surfaces merge to a greater extent. This variety I now designate *Galeosoma coronatum* var. *spheroideum*. Total length of the shield 10.8, greatest breadth 8.2, anterior depth of true marginal surface 2.4, posterior depth of same .4.

Galeosoma robertsi Hewitt (Pl. IV, fig. b).

Four female examples have been taken on the town lands adjoining the experimental farm at Potchefstroom (G. van Dam and A. Roberts). The ridge separating dorsal and secondary marginal surfaces is quite well developed, extending into the anterior half of the shield. Otherwise, they do not differ appreciably from Pretoria specimens of this species.

At Venterskroon (about twenty miles S.E. of Potchefstroom) Mr van Dam has found two specimens representing a distinct form of this species. These examples chiefly differ from the typical form of *robertsi* in the possession of long hairs on the upper surface of the shield: the hairs are rather sparsely distributed, being not quite so abundant as those on the shield of *coronatum typicum*. This variety may therefore be known as *Galeosoma robertsi* var. *crinitum*. The primary marginal surface in the typical form of *robertsi* is quite sharply differentiated from the secondary marginal surface, and, though greatly reduced in depth except anteriorly, is nevertheless continuous throughout uninterrupted by punctuations or furrows: in the Venterskroon specimens the two surfaces are not so sharply separated, and posteriorly the primary surface disappears altogether, the whole depth of the shield being coarsely pitted or furrowed posteriorly. The shape of the shield on the whole agrees with that of *robertsi typicus*.

This variety does not differ greatly from typical *coronatum*, and may prove to be completely connected therewith by intermediates: at present, the two seem separable in the position of the posterior ridge delimiting the upper and secondary marginal surfaces: in the shield of *robertsi*, when viewed from the side, this ridge is approximately in a line with the anterior ridge separating the dorsal and marginal surfaces: in *coronatum* the posterior ridge is on a higher level at its anterior extremity, the depth of the marginal surfaces there being greater than one-third of the transverse distance between the ridges of

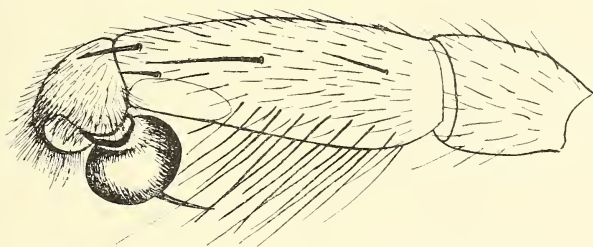
the two sides. Again, in the typical form of *coronatum*, the secondary marginal surface, characterised by much coarser and more sparsely disposed pits than the dorsal surface, completely encircles the dorsal surface, although its anterior portion is mainly distinguishable on account of the characteristic punctuations: in *robertsi* the secondary marginal surface does not completely encircle the dorsal surface, being quite unrecognisable anteriorly.

Measurements. Length of shield 10.5, breadth of shield 8, depth of marginal surface anteriorly 1.9, depth of marginal surface posteriorly 1.

Spiroctenus marleyi sp. nov. (text fig. 5).

The type of this species is a single adult male example collected at Eshowe, Zululand, by Mr H. W. Bell-Marley who kindly presented it to the Albany Museum. It is related to *spinipalpis* but can be easily distinguished therefrom through the characters of the palp and first leg: for example, metatarsus I is quite devoid of a scopula.

Legs. Tarsus IV with scopular hairs along the whole length of the segment on each side. Metatarsus I almost straight, with two spines at the apex inferiorly, three spines on the anterior surface, four on the posterior surface, and one or none mesially below, but no scopula, and metatarsi II-IV are also devoid of a scopula: II is spined much like I but there are three spines at the apex inferiorly. Tibia I with a pair of distal spur-bearing tubercles, the more



Text fig. 5. *Spiroctenus marleyi* sp. nov. Distal segments of male palp seen from mesial side.

distal tubercle with one curved and comparatively slender spur at the apex and a curved spine at the base; the other tubercle very weak, bearing a slender sigmoidly curved spur: in addition, there are three spines on the anterior surface, five on the inferior surface, one of which is apically situated, but none on the posterior surface. Tibia II with three spines at the apex inferiorly, two on the anterior surface and five on the inferior surface: III with three spines at the apex inferiorly, three or four on the anterior surface, three on the lower surface and three or four on the posterior surface. Patella I with one or two weak spines at the apex inferiorly, II with 2-0, III with a row of three short strong spines on the anterior surface and below this row there are two longer but weaker spines, IV with two spines on the anterior surface and one or two setiform spines at the apex inferiorly.

Labium and basal portions of *maxillae* armed with small elongated black cusps: there are about fourteen on the labium.

Chelicerae with eight or nine teeth in the inner row: the outer row includes six small teeth and a number of minute ones at the base of the series: the distal tooth of the outer row is in a line with the fourth from the distal end of the inner row, or the interval between fourth and fifth.

Posterior spinners with the apical segment about half as long as the penultimate segment.

Carapace as long as the metatarsus and tarsus of the first leg, and about equalling the metatarsus and one-third of the tarsus of the fourth leg.

Pedipalp. Tibia with an inferolateral row of three spines widely separated from each other, on the inner side: of these, the middle one is longest and the proximal one weakest: on the same side there is also a more dorsally situated spine near the apex of the segment. Patella with a single weak spine or strong bristle near the apex on the inner side. Femur with three strong spines superiorly near the distal end.

Colour. Appendages dull brown, carapace dark chestnut brown, abdomen infuscated superiorly.

Measurements. Total length 10.5, length of carapace 4.6, breadth of carapace 3.2, length of metatarsus of first leg 2.65, length of metatarsus of fourth leg 4.

A single female example obtained at the same time has the following characters: dentition essentially similar to that of male, the inner main row having nine or ten moderate sized teeth in a series which is interrupted in several places by an intervening minute tooth: the outer row includes 5-8 rather small teeth in a continuous series, at the base of which is a number of minute denticles, the distal tooth of the outer row being opposite to the interval between the third and fourth inner teeth counting from the apex: labium with ten cusps: maxilla with about twenty-two cusps: fovea procurved: patella III with a row of five stout spines along the anterior surface, the most basal one being very short: posterior sternal sigilla slightly more than twice their length apart: metatarsus I with two apical spines inferiorly and two along the outer side below: the two anterior pairs of tarsi are scopulate, but not densely so, and metatarsi I and II are not scopulate: apical segment of posterior spinners slightly more than half as long as the penultimate segment: the claws on all the legs have the usual double series of teeth, but the more distal row is composed of two or three very small teeth.

Colour. Carapace and appendages brown: abdomen infuscated superiorly, with numerous unarranged pale spots which break up the original dark tree pattern.

Total length 15, length of carapace 5.15.

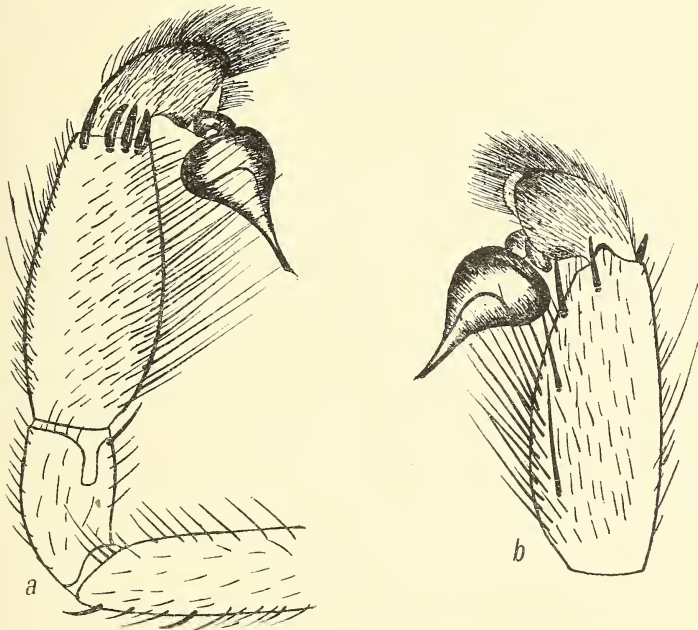
The absence of scopulae on the anterior metatarsi of the female is noteworthy, for, in females of all other species of this genus known to me, a scopula occurs on the distal portion of the first metatarsus at any rate: it is just possible that the specimen now described is immature, and that a few scopular hairs may occur in the adult female.

Spiroctenus spinipalpis sp. nov. (text fig. 6 a and b, Pl. III, fig. b).

This species is based on an adult male example from the hill above Ruby Creek, Swaziland, where it was collected by Mr A. Roberts (18. v. 1916). It can be distinguished at once from any of the described species of *Spiroctenus* through the presence of strong spines on the tibia of the palp. It is probably closely related to the Barberton species described by me under the name of *Paromostola* (?) *pardalina* (*Records Albany Museum*, II. p. 424), of which only the female is known (Pl. III, fig. a).

Legs. Tarsus IV scopulate almost to the base on each side. Metatarsus I almost straight, being only slightly bowed towards the base in side view, with two spines at the apex inferiorly, three spines on the anterior surface and four

on the posterior surface, one of them in each case being situated near the apex: it is scopulate in the distal third. Metatarsus II is similarly spined but is not scopulate, nor is there a scopula on III or IV. Tibia I with a pair of distal spur-bearing tubercles, the more distal tubercle with one curved black spur at the apex and a curved spine at its base, the other tubercle comparatively weak, its spur being sigmoidly curved: in addition, there is a row of three long spines along the anterior surface, about eight on the lower surface including one at the apex, also one on the posterior surface. Tibia II with three spines at the apex inferiorly, six on the lower surface, three on the anterior surface, but none on the posterior surface: III with three spines at the apex inferiorly, also five or six on the lower surface, two on the anterior surface and three on the posterior surface. Patella I with two spines at the apex inferiorly, II with only one spine thus situated, III with a row of three short spines on the anterior surface, IV without spines.



Text fig. 6. *Spiroctenus spinipalpis* sp. nov. *a*, Palp of adult male seen from outer side. *b*, Portion of same seen from inner side.

Labium and basal portions of the maxillae armed with numerous very minute elongated cusps. Altogether there are about thirty-six such cusps on the labium.

Chelicerae with nine teeth in the inner row, the apical one being small and the third from the base minute, or with ten teeth altogether the third and the fifth being minute: the outer row extends nearly as far as the inner row and includes eight small teeth and about six minute ones at the base of the series.

Pedipalps. At the apex of the tibia on its outer side is a row of three very stout spines: on the inner side distally there is a single fairly strong spine and a similar spine occurs more ventrally, quite near to the apex and in the same longitudinal line with two stouter bristles of the ventral tuft.

Posterior spinners with the apical segment about half of the length of the penultimate segment.

Carapace about as long as the metatarsus and three-fourths of the tarsus of the first leg, and as long as the metatarsus and one-fourth of the tarsus of the fourth leg. The deep part of the fovea has a short median posterior prolongation, being more or less T-shaped. The ocular tubercle is well marked off from the general surface of the carapace. The lateral margins of the carapace are fringed with stiff bristles which are strongest and most numerous in the posterior half. The greater portion of the carapace is glabrous but there are a few setae in the mesial region between the ocular tubercle and the fovea, and scattered stiff setae or weak bristles occur generally over the posterior portion of the carapace.

Colour. Carapace, abdomen, chelicerae and basal part of palps and legs as far as the patellae are very dark brown: patellae and more distal segments of legs and palps pale brown. The abdomen is infuscated inferiorly.

Measurements. Total length 13.2, length of carapace 5.3, breadth of carapace 4.1, length of metatarsus I 3.35, of metatarsus IV 4.8.

Spiroctenus londinensis sp. nov. (text fig. 7 a and b).

This species is based on an adult male and a series of females collected at East London by Dr Rattray and Master Rattray. The adult male was taken during August 1916: it resembles the male described by me from Pt. Alfred (*Records Albany Mus.* II. p. 467) under the name of *Spiroctenus armatus* but differs therefrom in the characters of the first leg. The female resembles those of *Bessia fossoria* Poc. and *Bessia minor* mihi, differing from the latter in the dentition of the chelicerae and from the former in the smaller number of cusps on the labium.

Legs. Tarsus IV scopulate to the base on each side. Metatarsus I slightly bowed in side view, with two spines at the apex inferiorly, one or two long stout spines on the anterior surface, also three on the posterior surface, two of the latter being situated inferiorly: it is thickly scopulate in the distal third. Metatarsus II has two spines at the apex inferiorly, one or two on the anterior surface and two inferoposteriorly: it is thickly scopulate in the distal third. Metatarsus III has several scopular hairs near the apex inferiorly but IV is quite devoid thereof. Tibia I with a pair of distal spur-bearing tubercles, the more distal tubercle with two stout flattened spurs at the apex, one of which is about twice as long as the other: the other tubercle is only slightly elevated, and bears at the apex a strong flattened spur: in addition, this segment bears a number of spines, viz. six on the lower surface including one at the apex, a row of two or three on the anterior surface but none on the posterior surface. Tibia II with three spines at the apex inferiorly, three on the lower surface, and two or three on the anterior surface but none on the posterior surface: III with three spines at the apex inferiorly, also three on the lower surface, two on the posterior surface and one or two dorsally but none on the anterior surface. Patella I with one or no spines at the apex inferiorly, II likewise, III with a single very short spine on the anterior surface, IV without spines.

Labium and basal portions of the *maxillae* armed with rather numerous minute cusps. Altogether there are thirty-eight such cusps on the labium.

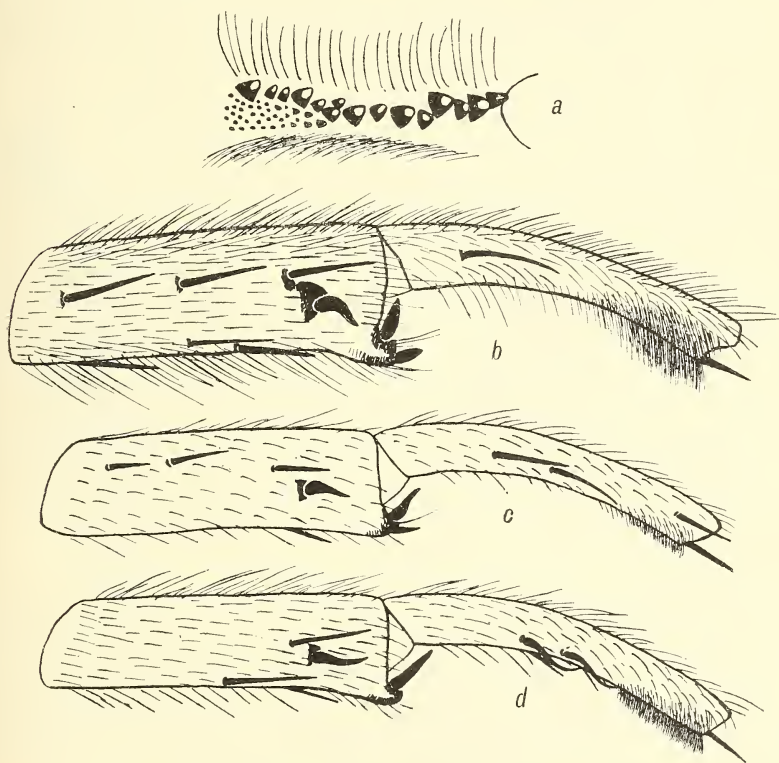
Chelicerae with about thirteen teeth in the inner row: the outer row is composed of minute teeth and extends not quite half-way along the main series.

Posterior spinners with the apical segment about three-fifths as long as the penultimate segment.

Palp. On the inner (anterior) surface of the tibia are two long but rather weak spines and many of the bristles forming the tuft on the ventral surface of this segment are spiniform.

Sternum. The second pair of sigilla is not deeply sunk in depressions.

Carapace about as long as the metatarsus and three-fifths of the tarsus of the fourth leg, and a trifle longer than the combined metatarsus and tarsus of the first leg. The deep part of the fovea is slightly procurved. The lateral margins of the carapace are fringed with bristles which are most numerous in the posterior half. The surfaces are for the most part devoid of setae but some occur in the posterior half, a few occur on the mid-line between the fovea and the ocular tubercle, others along lines radiating from the fovea and some fine hairs occur on the lateral portions of the head region.



Text fig. 7. *a*, Dentition of chelicera in female of *Spiroctenus londinensis* from East London. *b*, Tibia and metatarsus of first leg of adult male *Spiroctenus londinensis* from East London, viewed from inner side. *c*, Same in adult male *Spiroctenus minor* Hwtt. from Alicedale. *d*, Same in adult male *Spiroctenus armatus* Hwtt. from Pt. Alfred.

Colour. Carapace dark brown, chelicerae and femora of legs and palps blackish brown; the remaining segments of the legs and palps are reddish brown except the tarsi and metatarsi which are a little darker, those of the first two pairs of legs being about the same tint as the carapace. Upper surface of abdomen dull yellowish with infuscations which are somewhat indefinitely shown, being obscured by the black bristly hairs which cover the surface: in

the posterior half there is however distinct indication of thin dark cross stripes. Sternum and lower surfaces of appendages pale reddish brown: abdomen pale inferiorly.

Measurements. Total length 22, length of carapace 8, breadth of carapace 6.15, length of metatarsus I 5, of metatarsus IV 6.35.

The more important characters of the female are as follows: the inner series of teeth on the fang groove includes about fifteen large or moderate sized teeth forming a long but somewhat irregular row: the outer group includes numerous minute teeth in four or five rows, the whole group extending less than half-way along the main series: labium with about thirty-five cusps: patella III with one or two very short but stout spines on the anterior surface: fovea procurved.

The palps and legs are pale brown, becoming dark on the distal segments: the carapace is castaneous, the chelicerae blackish brown. The abdomen is infuscated superiorly, and has numerous small indistinct pale spots: ventrally it is pale.

Total length 27, length of carapace 10, breadth of carapace 7, length of fourth metatarsus 6.

I am indebted to Dr Rattray for the following information on the nests of this species. The lids of the female nests are of the same remarkable type as that described by Mr F. Cruden for *Bessia minor* (*S. African Journ. of Science*, 1916, p. 606, Pl. 28, figs. *g*, *h* and *l*). The hinge of attachment is very long and curved: there is also a well-developed hinge down the middle of the lid as if it had been made in two distinct halves which were afterwards united together. When the lid is wide open, its two halves are in the same plane: when closed down, they form an angle of about 120° with each other. The two halves of the lid are not weighted in any way, thus differing from that of *minor*. Claw and fang marks are not localised in any one spot on the lower surface. The tubular retreat is deep, passing downwards for a distance of about six or seven inches, the lower portion being free of web and lodged amongst the entangled roots of adjacent shrubs. Each nest may have two lids, as in *minor*, but more frequently has only one. The male was found in a lidless tubular retreat.

Spiroctenus curvipes sp. nov. (text fig. 8 *a-c*, Pl. III, figs. *d* and *e*).

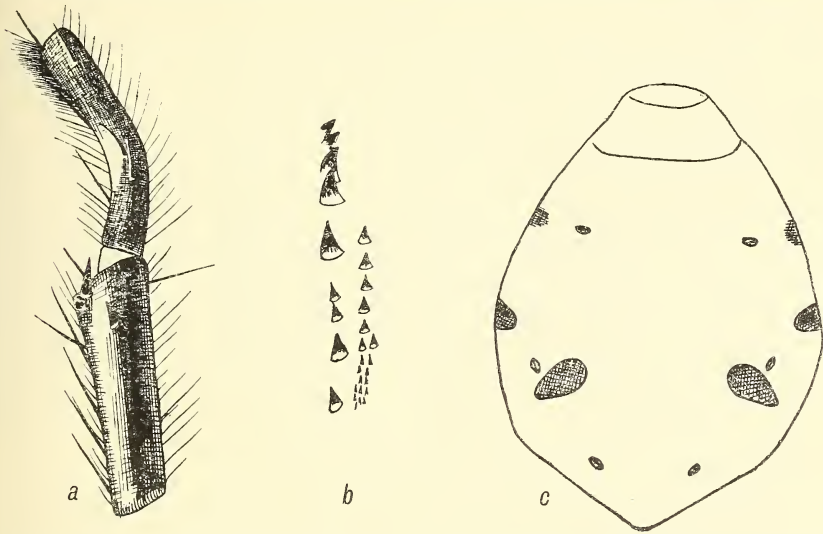
This species is founded on one adult male and a series of female examples collected at Klipspruit, Utrecht dist., by Mr J. Breyer. It is most probably nearly related to *S. personatus* Simon, from Delagoa Bay (*Actes Soc. Lin. Bordeaux*, XLII. 1888), the description of which is too incomplete for specific recognition: however, judging from Simon's reference to the colouration of the abdomen and to the characters of the metatarsus and tibia of the first leg in that species, it seems likely that the two are distinct.

The characters of the male are as follows:

Colour. Anterior portion and sides of carapace pale with a reddish tinge, hinder portion dark. Legs dark, almost black, except the coxae of the first two pairs which are reddish yellow. Inferiorly, the sternum and all the coxae are reddish yellow. Abdomen dark above with somewhat indistinct darker cross stripes broken in the middle; inferiorly pale.

Legs. The surfaces are rather thickly clothed with long hairs or bristles. Tarsus IV not scopulate. Metatarsus I rather strongly curved, with two spines at the apex inferiorly, three on the inner surface the largest and stoutest of which is situated at the bend and is itself strongly curved, also three or four

on the outer surface. Metatarsus II with two spines on the inner side, one at the apex inferiorly, one long weak one on the lower surface in the basal half and one or two on the outer surface. Metatarsus I and II only scopulate in the distal two-fifths inferiorly, III in the apical fifth or fourth, IV not at all. Tibia I with a pair of distal spur-bearing tubercles, the more distal tubercle with only one spur apically situated and without spur or spine at its base: ventrally, this segment also bears four or five long spines several of which may be rather slender. Tibia II with three spines at the apex inferiorly, four long ones on the inferior surface, one on the anterior surface, and two on the posterior surface: III with three at the apex inferiorly, also four or five on the lower surface, two on the anterior surface and four on the posterior surface, one of the latter being situated dorsally near the base of the segment and another quite near to the apex. Patellae I and II with a single spine at the apex inferiorly: III with a row of three strong spines on the anterior surface, also one weaker one on the inferior portion of that surface near the apex: IV with one or two long and very slender spines on the anterior surface.



Text fig. 8. *Spiroclenus curvipes* sp. nov. a, Tibia and metatarsus of first leg of adult male. b, Dentition of female (small specimen) c, Sternum of adult male to show the position of the sigilla and the sense organs.

Posterior spinners with the apical segment about half or three-fifths of the length of the penultimate segment.

Chelicerae with eight or nine teeth in the inner row, the three or four large teeth at the distal end of the series being crowded together and those at the base far apart, the one or two teeth in the middle of the series being much smaller than the others: there is also a shorter outer row of five small teeth.

Labium and *maxillae* muticous.

Carapace about equal in length to the metatarsus and half of the tarsus of the fourth leg, just exceeding the tarsus and metatarsus of the first leg. Fovea slightly procurved. Sides of carapace, especially posteriorly, strongly fringed with long black bristles, and the general surface except on the radial depressions is sparsely covered with short bristles posteriorly or hairs anteriorly.

Posterior sternal sigilla elongated, rather more than two diameters apart and about three-fifths of a diameter distant from the sternal margin. There is no pit-like depression on the sides of the sternum. Besides the larger sigilla of normal position, there are several pairs of small ones, all situated remote from the margin (see fig.). These are no doubt sensory structures, essentially similar to the lyriform organs that occur on the legs. The same structures occur in the males of *S. zebrina* Purcell.

Abdomen. Anteriorly, the upper surface carries a number of long black bristles and long stiff hairs backwardly directed.

Measurements. Total length 11 mm., length of carapace 4.1 mm.

The more important characters of the female are as follows: dentition of chelicerae resembling that of the male, the teeth being arranged in two rows, the larger inner row including one or two small teeth in the middle of the series, those more basally situated being rather widely separated from each other whilst the distal group includes three, four, or five teeth crowded together (see fig.); labium with 5-7 cusps, maxillae with 24-28 cusps: the tarsi of the two anterior pairs of legs are well scopulate and likewise also the metatarsi but to a less extent, the scopula of the first metatarsus stretching the whole length of the segment on one side at any rate: metatarsus I with two apical spines inferiorly and two along the outer side below: paired tarsal claws with an outer basal row of three well-developed teeth, the more distal one longest, but the inner distal row is ill-developed, being represented by three or four small teeth on tarsus I and by one small tooth or none at all on tarsus IV: patella III with a row of three (occasionally two) stout spines along the anterior surface: fovea procurved: apical segment of posterior spinners rather more than half as long as the penultimate segment. In the largest example the posterior sternal sigilla are about a diameter distant from the sternal margin and a little more than a diameter apart. The carapace and legs are pale olivaceous but on the mesial area of the cephalic region there are black hairs sparsely scattered although the cephalic portion is paler than the rest of the carapace: abdomen with dark oblique cross stripes on each side superiorly except in front where it is uniformly infuscated, but ventrally and laterally it is pale. Total length 21 mm., length of carapace 6.5 mm.

This species is at once separated from any of those described by Dr Purcell under the generic name *Hermachastes* by the dentition of the chelicerae. Unfortunately there is no reference to this character in the description of *S. personatus*. There can be little doubt, however, but that Simon's species, the genotype of *Spiroctenus*, is referable to the section which includes *Homostola zebrina* Purc. (Pl. III, fig. c), and the species just described.

The Transvaal Museum has a series of adult females with young, from Madjebesane, fourteen miles from Komati Poort, which are perhaps identical with *personatus*. In this series we find the following characters: abdomen dark, mottled with pale spots; chelicerae with two rows of teeth somewhat as in *curvipes*; labium with 5-15 cusps: posterior sternal sigilla about 1-1½ diameters apart, or appreciably more in young specimens; posterior spinners with apical segment about half as long as the middle segment; fovea procurved; patella III with a group of stout spines along the anterior surface; metatarsus I with two spines at the apex inferiorly and in addition with one or two along the lower surface on its outer side. This is very near to my *S. punctatus* (*Annals Durban Mus.* 1. p. 222) from Ngxwala Hill, N. Zululand. Recently, Mr A. Roberts has taken female examples apparently identical with the Madjebesane species at Wyldesdale, Swaziland.

Pelmatorycter breyeri sp. nov. (text fig. 9, Pl. II, fig. c).

The type of this species is an adult male collected at Klipspruit, Natal, by Mr J. W. F. Breyer. The species is closely related to my *P. nudus* (*Annals Transvaal Mus.* v. p. 192), described from Little Wonderboom, but differs therefrom chiefly in the presence of distinct scopulae on all the metatarsi, whereas in *nudus* scopulae are quite absent from metatarsi III and IV.

Pedipalp. Pressed forwards, the palp extends to a point about two-fifths of the distance along tibia I. Maxilla with a pair of denticles at the antero-basal angle inferiorly.

Chelicerae with nine teeth in the inner row.

Legs. Tarsus I with a single spine near the apex on the posterior side, II with 3-5 spines on the posterior side, III with six or seven spines on the anterior side and three or four on the posterior side, IV with about six on the anterior side and two on the posterior side. Metatarsus I with three spines at the apex inferiorly and two on the lower surface, II with three at the apex and four or five on the lower surface, IV with about eleven spines on the lower and anterior surfaces, besides those at the apex, and with two on the posterior surface. Tibia I inferiorly with three spines at the apex, seven on the inferior surface, four on the anterior surface, one of which, the basal one, being very small, and one on the posterior surface near the base. Patella III with about twenty spines on the anterior surface but only two on the dorsal surface; IV completely without spines. Tarsal claws of fourth leg with five internal (mesial) teeth and three or two external teeth. Tarsus IV broadly and densely scopulate.

The scopula of metatarsus III is only present in the apical fifth, but of IV in the distal two-fifths of the length of the segment.

Posterior spinners. Apical segment about as long as the middle segment.

Posterior sternal sigilla large, pear-shaped, hardly $1\frac{1}{2}$ diameters apart and not quite half a diameter distant from the sternal margin.

Carapace. The surface is corrugated throughout, except along the grooves and along the mesial portion anterior to the fovea.

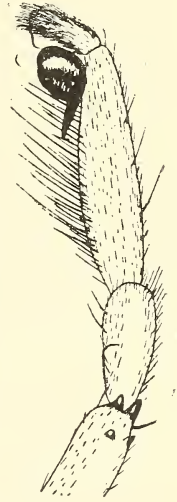
Colour. Chelicerae and carapace very dark brown, almost black: legs brown: abdomen with purplish infuscation superiorly.

Total length 13.7, length of carapace 5, breadth of carapace 3.7.

FEMALE.

A large and a small female of this species were also collected by Mr Breyer. The former has a total length of 22 mm., the carapace is 6.6 long, and 4.7 broad. Its more important characters are as follows:

Coxa III with a distinct tuft of long stiff setae on its post-ventral border: posterior sternal sigilla rather less than their length apart, and about half a length distant from the sternal margin: maxillae with three well-developed



Text fig. 9. *Pelmatorycter breyeri* sp. nov. Portion of male palp.

denticles at the anterobasal angle inferiorly: chelicerae with eight or nine teeth in the inner row, several being minute: posterior spinners with the apical segment subequal to or very slightly longer than the middle segment: abdomen elongated but not greatly so: claws of fourth tarsus with two or three teeth on each side.

The carapace is dark olivaceous, the chelicerae blackish brown, the patellae and more distal segments of the legs pale, abdomen with purplish infuscation above except for a small four-sided spot situated mesially at a point about one-fourth of its length distant from the anterior end of the abdomen.

In another specimen, also from Klipspruit, the distance between the sigilla is a trifle less than the distance between a sigillum and the sternal margin, the two sigilla being barely half a diameter apart.

Pelmatorycter tookei sp. nov.

This species is founded on five adult male examples taken at Peddie by Mr B. Marais. It is named after Mr W. M. B. Tooke, B.A., who, not long ago, arranged and identified the tick collection of the Albany Museum and rendered assistance to that institution in various other ways.

It is related to *P. nudus* mihi and *P. breijeri* sp. nov. It is easily distinguished from the latter through the weaker development of scopulae on the metatarsi, and through the stronger spinulation of metatarsus I: it differs from *nudus* in that the fourth tarsus is densely and broadly scopulate whereas there is no true scopula on tarsus IV of *nudus*.

Pedipalp. Pressed forwards, the palp extends to a point about half way along tibia I, or less. Maxilla without denticles at the anterobasal angle inferiorly. No spine at the apex of the femur anteriorly.

Chelicerae with seven or eight teeth in the inner row.

Legs. Tarsus I with 2-11 short spines inferiorly and one weaker one on the posterior side near to the apex, II without spines inferiorly and with one, two, or none on the posterior side, III with 2-6 spines on the anterior side and 0-4 on the posterior side, IV with 4-8 anteriorly and 5-12 posteriorly. Metatarsus I with three fairly long spines at the apex inferiorly and on the lower surface there is a more or less distinct double row of spines comprising altogether 8-17, the spines of the inner (anterior) row being shorter and weaker but generally more numerous than those of the outer row: II with three at the apex and 4-7 on the lower surface, also usually one on the anterior surface. Patella III with two strong spines on the upper surface and one or two weaker ones may also be present: there is also the usual group of spines on the anterior surface.

Tarsus IV rather swollen and broadly scopulate inferiorly, and all the other tarsi are scopulate. Metatarsi III and IV only feebly scopulate quite near to the apex: I and II weakly scopulate in the apical third. Tarsal claws of fourth leg with two well-developed rows of teeth, each comprising about 5-7 teeth.

Posterior sternal sigilla. About $1\frac{1}{2}$ -2 diameters apart and about half a diameter distant from the sternal margin.

Carapace. Viewed under a hand lens the surface seems uniformly smooth throughout, but not polished. Examined under a low power of a compound microscope it is seen to be minutely and densely shagreened over many isolated portions of its surface, a narrow longitudinal strip of such shagreen occurring on each side of the mesial line of the head region behind the eyes.

Posterior spinners. Terminal segment subequal to or very slightly longer than the middle segment.

Colour. Carapace and chelicerae brown, sometimes with a dull red tinge on the head region, but usually very darkly pigmented: legs brown: abdomen infuscated above and below, or somewhat paler below than above.

Measurements. Total length 11.7, length of carapace 4, breadth of carapace 3.

It may eventually seem advisable to separate generically this, and other species, characterised by the presence of horned femora in the adult male; in such case a new name will have to be framed, as there is no evidence that a horned femur occurs in either of Simon's species of *Ancylotrypa*. However, no basis for division can be discovered in the characters of the females.

Stasimopus nigellus Poc.

The Transvaal Museum has a series of four adult male and numerous female examples of this species from Venterskroon, taken March 31, 1917, by Messrs A. Roberts and G. van Dam.

The females agree closely with that described by me from Kroonstad under the name of *S. dreyeri* and are perhaps specifically identical therewith. The band of spinules on the upper surface of metatarsus I extends over scarcely more than one-fifth to about one-third of the dorsal length of the segment and is generally quite twice as long as that at the apex of the tibia. Tibia of palp with spinules apically above, but metatarsus III without spines or spiniform setae at apex below. The distance between anterior lateral and anterior median eyes is rather less than the long diameter of the former. Length of carapace 10 mm.: breadth of carapace 8.8.

The males are, I think, specifically identical with *S. nigellus* Poc. There is, however, no trace of a scopula at the apex of metatarsus I. Pressed forwards, the palp reaches about one-quarter of the distance along metatarsus I. Patella of palp only a little longer than patella I. Tarsus III may be quite devoid of spines on the anterior surface, or may have four or five weak ones. Patella III with 2-5 short spines on the anterior surface. Anterior median eyes about a diameter apart, or slightly more.

This is easily distinguished from *S. minor* mihi, a Bloemfontein species, by the measurements of the palp in comparison with those of the first leg.

Length of carapace 4.7, breadth of carapace 4.2, length of patella of palp 2.5, length of patella I 2, of tibia I 3.7.

The type example of *S. minor* has the following measurements: patella of palp 2.8, patella I 1.9, tibia I 3.1.

Stasimopus tysoni sp. nov.

This species is founded on a series of specimens collected at Port Alfred, including one adult male presented by Mr W. Tyson and some adult female examples from various donors (Misses E. and L. Britten, Mr F. Salisbury).

The male is comparatively large, agreeing in size with that of *schönlandi* Poc. from Grahamstown, and of *spinipes* mihi from East London: the female is rather small, being considerably smaller than adults of *schönlandi*. The characters of the male are not very distinctive: it agrees closely with the males of *spinipes* and of *schönlandi* in the elongation of the segments of the palps and

anterior legs: it differs from the latter in that the first metatarsus is not spined over the mesial portion of its inferior surface, as well as in the ocular characters, and from the former in the stronger development of spines on the anterior surface of patella III and possibly also the weaker spinulation of tarsus I may serve to distinguish it from *spinipes*.

The female approaches *schönlandi* rather than *spinipes* in the ocular characters, but differs from the former in the weaker development of spinules on the upper surface of metatarsus I: it differs from *spinipes* in the absence of spinules from the distal portion of the tibia of the palp.

The female also seems to present considerable points of resemblance to the Port Elizabeth species *S. castaneus* Purcell, which was based on a single female example. The relationship of these two species to each other cannot be determined until male and further adult female examples of *castaneus* are available. For the present it must suffice to separate them mainly on the ocular characters, and judging from a female example taken near to the beach at North End, Pt. Elizabeth, the band of spinules on the upper surface of metatarsus I is more strongly developed in *castaneus*, reaching one-quarter of the length of the segment.

MALE.

The keels of the carapace are very much flattened: the raised area, representing the lateral keel, is broadly and finely plicated transversely, the plicated area extending forwards to the anterior border of the carapace but posteriorly only to a point about midway between the anterior margin and the fovea. The median keel is also plicated in its anterior portion up to the region of the anterior median eyes: it is distinct throughout and posteriorly can be traced to the fovea as a faint and somewhat irregular ridge. The concavities included between these ridges are very shallow, almost obsolete.

Anterior median eyes rather less than a diameter apart, and the distance between the anterolateral and anteromedian eyes is a trifle less than the distance between the anteromedians.

Tarsus I with 4-6 spines anteriorly, and 6-7 on the posterior side. Metatarsus I without trace of scopula, and no spines over the mesial portion inferiorly. Patella III with a strip of comparatively numerous and fairly strong spines extending from base to apex on the anterior side, those near the distal edge being longest and strongest. There is a group of strong spines at the distal end of tibia III anteriorly. Anterior surface of tarsus IV with spines throughout its length, except in the basal fifth or sixth: posteriorly with eight or nine spines.

The upper surfaces of the body and appendages are black, except the distal portions of the legs and palps which are brown.

Length of carapace 7·8, breadth of carapace 7, length of patella of palp 2·85, of patella I 3·25, of tibia I 5.

FEMALE.

There are no spinules at apex of tibia of palp superiorly, and no spines nor spiniform setae (sometimes two or three bristles) at apex of metatarsus III inferiorly. The patch of spinules on the upper surface of metatarsus I extends over about one-sixth (occasionally as much as one-fifth) of the length of the segment, and this patch is rather longer than that at the apex of tibia I. On the inferior surface of metatarsus IV are usually several weak spines which are ventral members of the band on the anterior surface: these are not

constant in position and number. The ocular characters are variable: generally, the length of the anterior lateral eyes is subequal to the intervening distance between anterolateral and anteromedian, but in the largest example slightly exceeds that distance, and sometimes is a trifle less. Length of metatarsus I subequal to, or in the largest specimen appreciably exceeding, the width of the ocular area. Distance between anterior and posterior lateral eyes decidedly less than the long diameter of the former in the largest example; in most other examples they are subequal, but sometimes the anterior lateral is a little shorter than its distance from the posterior lateral.

Measurement of largest female: length of carapace 10.3, breadth of carapace 9, length of first metatarsus 3.4, breadth of ocular area 3.2.

This species will probably prove to be very limited in distribution. It is quite distinct from either of the two known to me from Grahamstown (*schönlandi* Poc., and a species doubtfully identified as *patersonae* mihi). It seems well separated from the large species *artifex* Poc. which is known only from female specimens taken in the Bathurst district at Rokeby Park and at Sea View near Kleinmond. It is different from the Peddie species, the males of which are very much smaller than that of *tysoni*. Possibly, these forms may ultimately be found to be linked together by intermediates: on the other hand, it is now certain that two related species may coexist in the same limited area, as is the case at Grahamstown, so that these various forms may really be stable entities.

Evagrus caffer Pocock var. *australis* Purcell (text fig. 10 a and b).

The species from Dunbrody described by Dr Purcell as *Thelechoris australis* now seems to be a variety of *caffer*. Since my former notes were written (*Annals Durban Mus.* vol. I. p. 132), Mr Cruden has presented to the Albany Museum a series of males from Alicedale: so far as the sexual characters are concerned, these cannot be satisfactorily separated from *caffer* as found at Durban. The characters of the Alicedale males are as follows:

Pedipalp short, when pressed forwards scarcely reaching the distal margin of patella I: bulb pyriform, passing gradually into the spine which tapers to a point at the apex where it is slightly curved, the basal part of the spine being broadly curved: tarsus short and without spines: tibia longer than the patella, expanded below and beset on all the surfaces with long curved stout bristles or setiform spines, except on each side in the proximal half and inferiorly on the outer side, three of the inferior spines on the inner side being a little stouter than the rest: long spiniform setae also occur on the upper surface of the patella, and on the distal edge inferiorly, and others on the posteroinferior edge of the femur, each arising from a minute tubercle.

Tibia II on the anteroinferior edge with a very strong, forwardly projecting, compressed, process, situated about two-fifths of the length of the segment from its distal margin, the process bearing two, three, four or five black, sharp pointed, claw-like, tubercles.

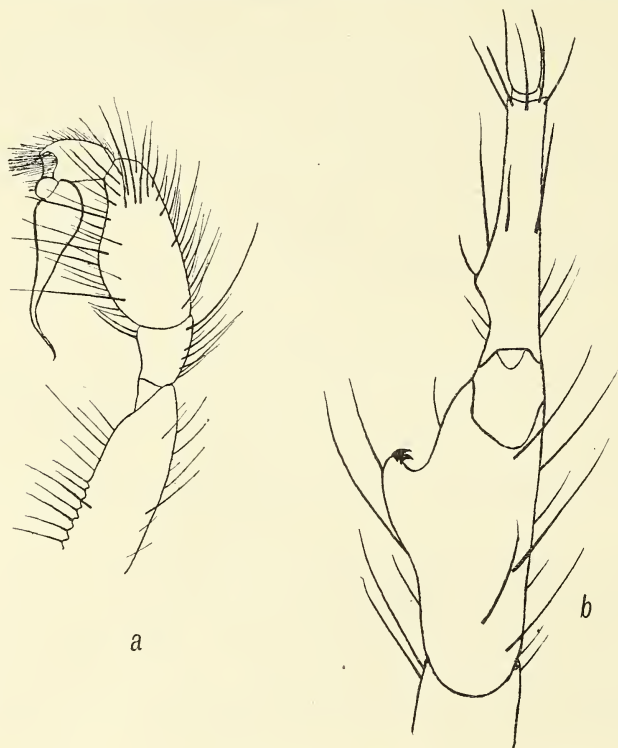
Metatarsus II with a fairly strong obtuse projection, tipped with a spine, on the ventral surface at a point about one-third of the length of the segment from its base: this segment measured on the mid-dorsal line is much longer than tibia II. Tibiae and metatarsi of all the legs armed inferiorly and at the sides with long spines. Tarsi spined at the sides and thinly scopulate below.

Dorsal surface of abdomen with numerous long, outstanding, bristly setae, as well as golden hairs, and similar stout setae occur on the legs.

The dental series of the chelicera has large and small teeth arranged more or less alternately in a well-defined row: a few minute denticles, external thereto, near the base of the series, represent the outer row.

Measurements. Total length 13.5, length of carapace 5.2, of tibia, metatarsus and tarsus of fourth leg 11.8, of tibia, metatarsus and tarsus of second leg 8, of metatarsus of second leg measured along mid-dorsal line 3.2, of tibia of second leg measured along mid-dorsal line 2.3, posterior spinners 7.6.

The characters of the male palp are very different from those of *Ischnothele* (= *Thelechoris*), which is not known to occur in S. Africa, south of the Limpopo: the male of an East African species of this genus (*I. karschi* B. and L.) has



Text fig. 10. *Evagrus australis* (Purcell). *a*, Distal portion of male palp. *b*, Tibia and metatarsus of second leg of male seen from below (note that in dorsal or lateral view the metatarsus appears much longer than the tibia).

been well figured recently by L. Berland (*Voyage de Ch. Alluaud et R. Jeannel en Afrique orientale* (1911-1912). *Résultats scientifiques. Arachnida*, III. Paris, 1914).

A species of *Ischnothele* has been described—but very imperfectly—by R. I. Pocock from Mashonaland.

Subfamily BARYCHELINAE.

Idiothele gen. nov.

This new generic name is provisionally applied to a trap-door spider which seems to be related to *Harpacticella* Purcell, and to *Brachionopus* Poc., differing

from either in the presence of well-developed feathery scopulae on the external surfaces of the chelicerae in the female. I may remark, in passing, that the two genera just mentioned seem to me identical. The genus also resembles *Pterinochilus* Pocock, differing therefrom in the shortness of the terminal segment of the posterior spinners and in the smaller area occupied by the cheliceral scopulae. Although the absence of scopulae on the chelicerae, apparently in both sexes, is a character specially emphasized by Dr Purcell in diagnosing the genus *Harpactirella*, there is just a possibility that it may eventually seem desirable to extend the definition of that genus so as to include the species now described.

The generic and even the family characters are very elusive, and I am satisfied that no useful purpose is served by maintaining the Barychelidae and Theraphosidae as distinct families. A certain amount of evidence in favour of the union of these two groups may be found in the writings of those leading authorities who have nevertheless recognised them as distinct families. Dr Purcell, in his original description of *Harpactirella*¹, referred that genus to the family Theraphosidae, but subsequently² regarded it as referable to the Barychelidae, apparently on account of the presence of a rastellum. The rastellum is however a very weak one, similar in fact to that found in species of the Theraphosid genus *Pterinochilus*, and, in any case, such a character, which varies so greatly amongst trap-door spiders and is merely an adaptation for boring into hard ground, should not be given the importance of a family distinction in my opinion.

A spider described by Mr R. I. Pocock from the neighbourhood of Grahams-town under the name of *Pterinochilus schönlandi*³, and thus referred by him to the family Theraphosidae, seems to me in all probability identical with the species from Dunbrody described by Dr Purcell under the name of *Harpactirella magna*⁴. Mr Pocock's type specimen is an adult male, now in the collection of the British Museum, and when determining the material in the Albany Museum I availed myself of the kindness of Mr S. Hirst to obtain further particulars regarding that type: according to the latter authority, the chelicera of *Pterinochilus schönlandi* has a scopula on both inner and outer surfaces, which by the generic definitions of Pocock and Purcell will exclude it from both *Pterinochilus* and *Harpactirella*. Dr Purcell's type of *H. magna* is a female, the description being exactly applicable to females in our collection which were taken along with males I now refer to *P. schönlandi*. These females on the other hand have no scopula on the inner surface and can hardly be described as scopulate on the outer surface of the chelicerae: there is however a well-developed compact patch of long silky hairs on the superior portion of that surface. In our male specimens of the same species, this patch is much denser and may rightly be described as a scopula, whilst the patch on the inner surface distally is also decidedly a scopula.

The genus now described may possibly prove to be a near ally of the Mozambique species *Leptopelma dubia* Karsch⁵: that species is however markedly different in its toothed claws.

The types of the new genus are five female specimens collected at Malelane, Barberton dist., by Mr Austin Roberts (24. vi. 1916). These I now suspect to

¹ *Trans. S. African Phil. Soc.* xi. p. 340. 1902.

² *Annals S. African Mus.* iii. p. 101. 1903.

³ *Ann. Mag. Nat. Hist.* 7. vi. p. 318. 1900.

⁴ *Annals S. African Mus.* iii. p. 102. 1903.

⁵ *Monat. König. Akad. Wiss. Berlin*, 1878 p. 314 Taf. I, fig. 1.

be referable to a species described from Barberton by Mr R. I. Pocock under the name of *Pterinochilus nigrofulvus* (*Ann. Mag. Nat. Hist.* 7. 1. p. 317): the description of that species is however very inadequate for identification purposes and, if I am right in my determination, the colour characters cited in that description are inaccurate. The determination is mainly based on the following points: locality datum, the length of the metatarsus of the fourth leg in the female, and the character of the spine of the palpal organ in the adult male.

Idiothele nigrofulvus (Pocock) (text figs. 11 and 12 a, Pl. II, fig. b).

Ocular tubercle. Subrotund, a trifle broader than long, separated from the anterior margin of the carapace by a distance equal to about one-half or even a trifle more, of the length of the tubercle. Anterior row of eyes strongly procurved. Distance between the lateral eyes equal to about two-thirds or only one-half of the length of the anterior laterals, and subequal to the length of the posterior laterals or only about two-thirds that length. Posterior medians occupying about half the area of the posterior laterals, more or less. Distance between anterior medians subequal to the diameter of a median. The posterior medians are very close to the anterior medians and to the posterior laterals, being at any rate not more than one-third of a diameter distant from the latter, nor more than half a diameter from the former: they are the smallest of the whole group, being very much smaller than the anterior medians.

Carapace. Fovea a narrow slit, transverse or very slightly procurved. Length of carapace subequal to the patella, tibia and one-third of the metatarsus of the first leg; or to the tibia, metatarsus, and almost half of the tarsus of that leg; or to the metatarsus and two-thirds of the tarsus of the fourth leg.

Legs. Tibia I with one or two apical spines inferiorly; II with two spines at the apex inferiorly; III with two and IV also with three or two spines similarly situated but a little stronger than those on I or II. Metatarsi I or II without spines; III with three at the apex inferiorly, one on the lower surface basally on the inner side, two on the anterior surface and one on the posterior surface; IV with three at the apex inferiorly and two on the ventral, anterior and posterior surfaces. The scopulae of the tarsi and metatarsi are very dense and broad, being plainly visible from above. The tarsal scopulae are all entire, that of IV having scattered black setae mesially, but the scopula is not divided thereby. Metatarsus IV is completely divided by a narrow mesial strip of setae, but all the other metatarsal scopulae are undivided: the scopulae of I and II do not reach quite to the base, that of III is absent from the basal third, of IV from the basal two-fifths of the segment. Tibia I a trifle longer than the metatarsus (measured along the mid-dorsal line) but decidedly shorter than the distance between the fovea and the ocular tubercle. Tarsal claws muticous.

Chelicerae. Inner dental series with nine or ten strong teeth: there is an outer series of minute teeth stretching rather more than half the length of the main row. Rastellum composed of long stiff setae. There is a large thick scopula on the outer surface of each chelicera the greatest depth of which is subequal to or only slightly greater than that of the naked area beneath it. There are about 5 or 6 long but weak stridulatory bristles on the outer surface most of which are situated inferiorly, near to the bristles which fringe the fang groove.

Labium with about fifty teeth in four or five irregular rows. Basal portion of maxilla with numerous teeth at the anterior corner: in the largest specimen there are between sixty and seventy, but fewer in smaller specimens.

Posterior spinners. The basal segment is only a little longer than the two terminal segments taken together, the length of which is subequal to the breadth of the ocular tubercle. The terminal segment is conical and only a trifle shorter than the penultimate segment.

Colour. Sternum, ventral portions of coxae of legs and palps, and ventral portion of abdomen black. Carapace brown, with a number of well-developed pale radiating stripes due to short appressed yellowish brown hairs (golden in the young) which also form a well-marked border to the carapace: the brown areas between the stripes are clothed with short appressed dark brown hairs. Abdomen superiorly finely mottled with indistinct small yellow spots, and bearing an ill-defined dark tree pattern: there is a pair of rather conspicuous dark blotches in the anterior portion near to the mid-line: the abdomen has a thick covering of shorter appressed hairs some of which are dark brown and others yellow, and, in addition, there is a number of long projecting stiffish yellow hairs rather sparsely distributed. The legs are pale ashy brown, being well covered with short appressed pale hairs, and in addition with some scattered longer hairs which are dark brown in their basal portion, becoming pale distally. There are no definite fringes of long hairs on the lower parts of the legs.

Measurements. Total length 40, length of carapace 13.8, breadth of carapace 11.75, breadth of ocular tubercle 2.1, length of first leg 40.5, of second leg 38.5, of third leg 37.2, of fourth leg 46, of tibia I 6.6, of tibia II 5.8, of tibia IV 7.5, of metatarsus I 6.25, of metatarsus IV 10.3.

More recently, a still larger specimen has been received from Malelane: its measurements are: carapace length 15.8, carapace breadth 12.9, distance from fovea to anterior margin of carapace 10.5, distance from fovea to hind margin of ocular tubercle 8, length of metatarsus of fourth leg 11.9. The length of metatarsus IV compared with the distance between the fovea and the anterior margin of the carapace seems to be a good character.

The proportion between the length of the carapace and that of the terminal segments of the fourth leg is not however an absolutely constant character, at any rate when the material includes specimens of different size and age. In one example, otherwise of subadult proportions, the carapace is just about equal in length to the metatarsus and tarsus of the fourth leg.

The adult male of this species is represented in the collection by a specimen from Hectorspruit (F. Streeter, 5. v. 1911). In general characters it resembles the female fairly closely. The carapace presents well-marked pale radial stripes: the hinder half of the abdomen superiorly has about five pale transverse stripes: the lower surfaces of the abdomen, coxae and sternum are infuscated but the femora and more distal segments of the legs are quite pale inferiorly.

The measurements are as follows: total length 28.5, length of carapace 11.15, breadth of carapace 9.4, distance from fovea to anterior margin of carapace 7.35, distance from fovea to posterior margin of ocular tubercle 5.7, length of tibia I 6.15, of tibia IV 7, of metatarsus I 6.30, of metatarsus IV 10.

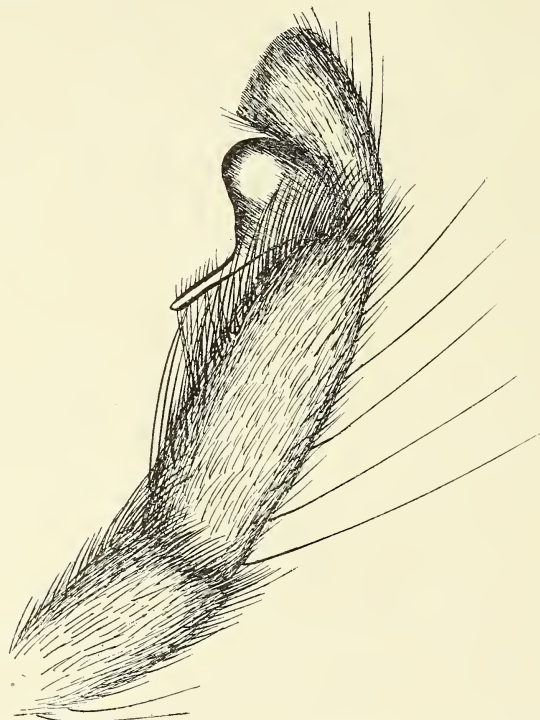
The length of the carapace is subequal to that of the tibia together with three-fourths of the metatarsus of the first leg.

The distance between the anterior median eyes is subequal to the diameter of an eye, and the distance between anterior median and anterior lateral is

decidedly less than the diameter of the anterior median. At the apex of the tibia of the palp there is a slender straight spine-bearing projection on the inner side and a spine on the outer side.

It is very probable that *Pterinochilus crassispina* Purcell, based on an adult male from the Motopo dist., Matabeleland, will prove to be referable to this genus.

The Transvaal Museum has an adult male *Idiothele* from Wolmaranstad. It agrees closely with Dr Purcell's description of *Pterinochilus crassispina*, more especially with the Vryburg specimens of that species. The more important measurements are:



Text fig. 11. *Idiothele nigrofulvus* Poc. Portion of palp of adult male.

Length of carapace 13.7, breadth of carapace 11.2, length of tibia I 6.8, length of metatarsus I 7.15, of tibia IV 7.7, of metatarsus IV 12, distance from fovea to hind margin of ocular tubercle 6.9.

The distance between the anterior median eyes is a trifle greater than the diameter of an eye and that between anterior median and anterior lateral is subequal to the diameter of the median.

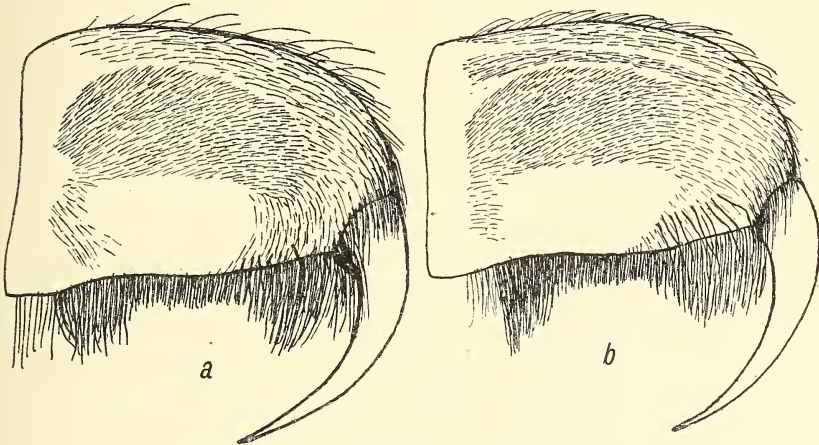
The differences between the males of this species and of *I. nigrofulvus* do not seem to be very great. The carapace is more uniformly brown in this species, and the eyes are relatively smaller, also the shape of the carapace is slightly different, that of *nigrofulvus* being broader in proportion to its length: the general proportions of the leg segments are however very similar, and the palpal organ seems much the same in the two forms. It is probable that the

Vryburg and Wolmaranstad form will prove to be distinct from the type as described by Dr Purcell from the Motopo dist., for minor differences seem to be presented in the proportions of the tibia and metatarsus of the first leg.

Nest. The females of *nigrofulvus* were found by Mr Roberts in tubular retreats provided with a well-developed trap-door. The door is very large but thin, becoming very delicate and flexible at the margin which presumably overlaps the entrance to the retreat: the shape is subcircular or more or less D-shaped. The area of a large specimen is about equal to that of a five-shilling piece.

Idiothele pluridentatum sp. nov. (text fig. 12 b).

The type of this species is a single female specimen from Nuanetsi River, Zoutpansberg dist., collected by Mr G. van Dam, 15. vii. 1916.



Text fig. 12. Outersurface of right chelicera of (a) *Idiothele nigrofulvus* (Poc.), (b) *Idiothele pluridentatum* sp. nov. to indicate the position of the scopulae and stridulatory bristles in each. (These bristles are represented as stouter than they actually are: they are very similar to the long red bristles which fringe the inferior margin of the chelicera.)

It differs from *I. nigrofulvus* in the following respects:

Ventral surfaces paler, the abdomen being devoid of infuscation inferiorly, and the coxae are only slightly infuscated, whilst the sternum is dark brown instead of black.

Carapace as long as the metatarsus and tarsus of the fourth leg.

The long stridulatory bristles on the chelicerae are rather more strongly developed, an upper series, well removed from the bristles which fringe the fang groove, being present. The cusps on the maxilla at its antero-basal corner inferiorly, are more numerous and much more compactly disposed, the whole group including rather more than a hundred cusps.

The radial markings on the carapace are not so strongly defined as there is not much differentiation between pale hairs and dark hairs, the carapace being mostly clothed with pale hairs although dark hairs do occur: these hairs are longer than those on the carapace of *nigrofulvus* and the surface has a more shaggy appearance. The ocular tubercle is rather less than half its length distant from the front margin of the carapace.

Measurements. Total length 32, length of carapace 11.6, breadth of cara-

page 8.75, length of first leg 32, of second leg 29, of third leg 27.5, of fourth leg 34.8, of fourth metatarsus 7.4, of fourth tibia 5.6, of first metatarsus 4.8, of first tibia 4.9, distance from fovea to anterior margin of carapace 7.5, distance from fovea to hind border of ocular tubercle 6.1.

According to Mr van Dam's note, this species is also a trap-door maker, the nest being "like that of a large *Acanthodon*, the hinge of the lid 20 mm. long."

The numerous densely disposed cusps on the maxilla would appear to be the most distinctive character of the species. In this respect it differs from the Malelane specimens of *nigrofulvus* and from a Tsessebe specimen which presumably belongs to *crassispina*: in a large female from Barkly West, however, there are also numerous cusps on the maxilla but hardly so many as in the form now described. The type of *pluridentatum* is perhaps immature but the cusps on the maxilla are not likely to decrease with age.

In the Tsessebe specimen of *crassispina*, the carapace is 15.5 mm. long and the distance from the fovea to its anterior margin slightly exceeds the length of the fourth metatarsus: the Barkly West specimen, with carapace 16 mm. long, has the length of the fourth metatarsus subequal to the distance from the fovea to the anterior margin of the carapace. In both specimens the ventral surface of the abdomen is blackened like the sternum.

Pterinochilus breyeri sp. nov.

This species is founded on one large female and a half-grown specimen taken at Malelane, Barberton dist., by Mr A. Roberts, the former dated Feb. 1915, the latter 19. vi. 1916.

The smaller example is about the same size as the type female of *P. nigrofulvus* Pocock, but is clearly different therefrom in the shortness of the fourth metatarsus. The most noteworthy feature of the species is however the absence of heavy fringes of hairs on the legs: such heavy fringes are specially well developed on the lower surfaces of the tibiae of the first two pairs of legs in the large species of *Pterinochilus*¹ found in the Zoutpansberg, Waterberg and Rustenburg districts. The ventral surfaces of the sternum and coxae bear numerous long red-brown hairs projecting at right angles from the surfaces, but there is no velvet such as occurs in the Zoutpansberg species, these red-brown hairs being much more sparsely disposed than the shorter hairs which compose the velvet of the latter species. The slit of the fovea is narrow and quite shallow: at its anterior margin the surface of the carapace rises up considerably above the bottom of the fovea, but posteriorly the level of the carapace scarcely rises above the lowest part of the excavation. In the large specimen, radiating lines on the carapace are not sharply indicated for the general surface is covered with yellow hairs which occur over the interradiial regions as well as along the radii, but are not so thickly disposed in the former areas: in the small specimen the radiating lines are decidedly well developed and besides the numerous golden yellow hairs the carapace bears some whitish

¹ I presume this is the same as *P. junodi* Simon, described from the Zoutpansberg dist. (*Rev. Suisse Zool.* XII. p. 66, 1904). It may possibly be the same as *P. vorax* Poc., which, according to E. Strand, is a synonym of *P. constrictus* Gerst., the species being of very wide range in East Africa and recorded by Strand from Bulawayo, Victoria Falls and various localities in Mozambique.

For a list of the recorded species of this genus and a key to the specific characters see L. Berland in *Voyage de Ch. Alluaud et R. Jeannel en Afrique orientale* (1911-1912). *Résultats scientifiques. Arachnida.* III. Paris, 1914.

ones, mostly situated near to the fovea, and these in passing along the inter-radii become brownish. Ventrally, the black colouration occurs over the sternum, the coxae of the legs and palp, the basal portions of the first two pairs of legs as far as the basal half of the first tibia and the basal third of the second tibia and over the whole of the palp except the tarsus.

Measurements. Total length 50.5, length of carapace 20, breadth of carapace 14.25, distance from fovea to anterior margin of carapace 13, distance from fovea to posterior margin of ocular tubercle 10.1, length of metatarsus I 9, of metatarsus IV 11.75, of tibia I 9.35, of tibia IV 9, of apical segment of posterior spinners 3, of middle segment thereof 2, of basal segment 3.6, length of ocular tubercle 2.2, breadth of ocular tubercle 2.4.

There are other female specimens in the Transvaal Museum from Hector-spruit (F. Streeter).

Ceratogyrus brachycephalus sp. nov. (Pl. I, figs. a-c).

The types of this species are four female examples collected at N'jelele River, Zoutpansberg dist., by Mr G. van Dam during August 1916.

Colour. The general colour of carapace and appendages is light brown. Anteriorly, the upper surface of the abdomen is dark brown with numerous small pale spots, but more posteriorly it is pale brown with indications of thin dark cross stripes. Ventrally, the sternum and coxae of the appendages are blackish: the femora, and to a less extent the remaining segments of the first two pairs of legs and of the palp, except the scopulated segments, are deeply infuscated: the abdomen also is deeply infuscated except on the lung opercula and genital sternite.

Carapace. This is decidedly longer than the metatarsus and tarsus of the fourth leg, and much longer than the tibia and metatarsus of the first leg. No trace of pale radial stripes. The horn arising from the fovea is very large and is directed horizontally forwards, the apex being not much elevated above the level of the carapace anterior thereto: it reaches forwards to a point not far from the ocular tubercle, its distance therefrom being subequal to $\frac{1}{2}$ – $\frac{3}{4}$ of the breadth of the horn. The excavation of the fovea also extends forwards considerably, the horn being partly sunk therein and not rising freely from the carapace except slightly just at the apex (in one specimen however not even at the apex). The horn varies in size, being sometimes considerably longer than metatarsus I, at other times subequal thereto.

Legs. Tibia I very slightly longer than metatarsus I and subequal to tibia IV.

Measurements. Total length about 53 mm., length of carapace 19.5, breadth of carapace 15, length of horn 8, breadth of horn 4.5, length of tibia I 8.8, length of metatarsus I 8.2, of metatarsus IV 11, of tibia IV 8.8, length of apical segment of posterior spinners 3.2, breadth of ocular tubercle 2.15. In another specimen with carapace 18.8 mm. long, the horn measures 7.2×4.35 : a third example with carapace 18.5 mm. long has a horn measuring 9.3×4.4 .

The Albany Museum has specimens of this form from Tsessebe (E. C. Wilmot), and it is noteworthy that another species was taken in the same neighbourhood by Mr Wilmot: this latter seems very near to *C. darlingi* Pocock, described from Enkeldoorn, a locality 110 miles S. of Salisbury (*Proc. Zool. Soc.* 1897, p. 754, Pl. XLII, fig. 5 and Pl. XLIII, figs. 1–1 a).

Ceratogyrus dolichocephalus sp. nov. (Pl. I, fig. *d* and Pl. II, fig. *a*).

The types are two female specimens from Victoria, S. Rhodesia, collected by Miss S. E. A. Ambrose and Master R. H. Ambrose.

Colour. The general colour of body and appendages dorsally is brown. The long hairs have a rufous tinge: this is very marked on the upper surface of the abdomen in its hinder half. The carapace has conspicuous thin pale radial stripes. Ventrally, the sternum and coxae of legs and palps are blackish brown: the femora of the first two pairs of legs and of the palps are also very dark, the patellae and tibiae being brown. The ventral surface of the abdomen, including the lung opercula, is dark brown but the genital sternite is yellow.

Carapace longer than the tibia and metatarsus of the first leg and subequal to the tibia and metatarsus of the fourth leg. The horn of the fovea is not separated off from the rest of the carapace by a continuous groove all round its base, for the limiting groove is U-shaped, and the horn thus appears to be a backward extension of the head region: the head region from the ocular tubercle to the horn is fairly well raised from the rest of the carapace, and in side view the outline of this region is practically a straight line from the hind margin of the ocular tubercle to the end of the horn, the latter being only a trifle raised above that line. The apex of the horn is obtuse, and posteriorly descends suddenly so that the horn presents practically no free ventral portion.

Legs. The tibia of the first leg is decidedly longer than the metatarsus of that leg, and just a trifle longer than the tibia of the fourth leg.

Measurements. Length of carapace 20·9, breadth of carapace 16·1, distance from anterior margin of carapace to apex of the foveal horn 16·8, distance from anterior margin of carapace to the U-shaped groove margining the tubercle 12·5, distance from base of tubercle to hind margin of the carapace, measured along the median line 3·9, length of tibia I 10, of tibia IV 9·6, of metatarsus I 9, of metatarsus IV 11·5, breadth of foveal horn 4, length of apical segment of posterior spinners 3·1, breadth of ocular tubercle 2·65.

The Albany Museum has a specimen of this form from Salisbury, collected by Mr C. von Hirschberg.

The species is of particular interest as it seems to be primitive with regard to the characters of the foveal horn, and connects the more typical species of *Ceratogyrus* with those of *Pterinochilus*. It clearly points to the conclusion that the genus *Ceratogyrus* originated from a *Pterinochilus*-like ancestor which had a strongly procurved fovea. The characters of a male, which presumably belongs to this species, afford almost convincing evidence of this, for the adult male is quite devoid of a tubercle as such, this organ being represented by the undifferentiated portion of the cephalothorax which is included within the U-shaped groove of the strongly procurved fovea.

MALE.

Mr C. von Hirschberg has collected what seems to be the male of this species at Salisbury. But for the fact that it was taken in the same neighbourhood as a large female of *dolichocephalus*, I would have hesitated to refer it to this species or even to the genus *Ceratogyrus*. However, it may prove to be identical with *C. marshalli* Pocock, also taken at Salisbury (*Proc. Zool. Soc.* 1897, p. 754, Pl. XLIII, figs. 2-2 *b*), but according to Pocock's description and figure that species has a distinct, but small, foveal tubercle.

Our Salisbury male has the following measurements: total length 35.75, length of carapace 14.5, greatest breadth of carapace 11.5, breadth of carapace anteriorly 5.25, distance from anterior margin of carapace to posterior end of "tubercle" 9.4, breadth of U-shaped groove of fovea, measured anteriorly 2.15, length of tibia I 9.1, of tibia IV 8.5, of metatarsus I 8.7, of metatarsus IV 11, of apical segment of posterior spinners 2.25. The length of the fourth metatarsus thus very decidedly exceeds the distance from the anterior margin of the carapace to the end of the foveal tubercle: such is not the case in the Umtali male, where in fact the distance from the anterior margin to the tip of the tubercle slightly exceeds the length of the fourth metatarsus.

The carapace is unfortunately too rubbed for description of the hair covering: apparently, pale radial stripes were present. The upper surfaces of body and appendages are more or less ashy brown, the distal margins of the segments of the legs and palps from the femora onwards being fringed with white hairs. The upper surfaces are nowhere rufous or ferruginous. Apparently, nothing very distinctive is found in the palpal characters nor in those of the first leg. It may be noted that the process at the apex of tibia I is strongly curved outwards, and the spine it bears is also curved. The spine of the bulbal organ is moderately long, curved, and drawn out suddenly to a point at the apex.

The narrowness of the carapace anteriorly will perhaps prove to be distinctive of the species: in the specimen now described the carapace is compressed laterally in its anterior portions, whereas in males of other species it seems to be more depressed.

Family ZODARIIDAE.

Diores godfreyi sp. nov. (text fig. 13 a-c).

The type is a single adult female example taken at Somerville C. P. by the Rev. R. Godfrey who writes of it: "the spider was found inside a nest built exactly after the pattern of a false scorpion's, a nest of small pieces of grit lying hemispherically on a stone with a slender silken lining on the inside of the hemisphere and on the enclosed surface of the stone." Similar nests have been found by Mr F. Cruden at Alicedale, the species of that locality being referable apparently to *D. bivittatus* Simon. The Somerville species differs from *bivittatus* in the following characters: size, colour pattern, and form of epigyne.

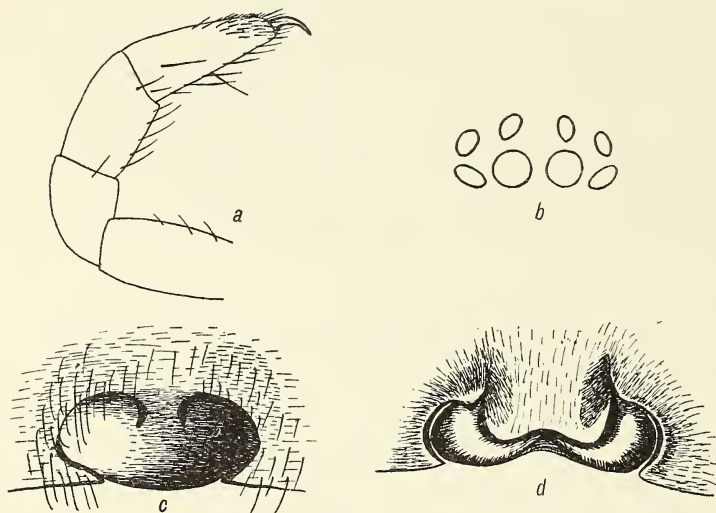
Colour. The abdomen superiorly is dark purplish, and its posterior half has five short transverse pale stripes which are restricted to the mesial region: the most anterior stripe is chevron-shaped and the second one is distinctly bowed in the middle: posteriorly, in the neighbourhood of the vent, is a pale patch formed by fusion of several posterior stripes. Lower surfaces of abdomen whitish. Carapace and legs straw coloured.

Ocular area very similar to that of *bivittatus* but the anterior median eyes are not quite so large as in that species: the distance between the anterior medians is $\frac{1}{3}$ — $\frac{2}{3}$ of the diameter of an eye, whereas in *bivittatus* it is about one-quarter of a diameter.

Pedipalp. There are no distinct spines on the palp but spiniform setae occur on the tarsus, two of which are rather stronger than the rest. The claw is longer and stronger than that figured by Simon for *bivittatus*, or than in Alicedale specimens which I refer to that species.

Epigyne. There is a mesial dark brown glabrous area considerably broader than long, with strongly curved surface. There is no pocket or depression on this surface, except in the pair of minute, backwardly directed, deeply pigmented clefts which form the anterior termination of the furrows that constitute the lateral boundaries of the area. The epigyne of the Alicedale species has a deep and broad mesial pouch, separated from the genital opening by a narrow raised bridge which connects the convexities of the two sides.

Measurements. Total length 3.75, length of carapace 1.65, breadth of carapace 1.1.



Text fig. 13. *a*, *Diores godfreyi* sp. nov. Palp of female. *b*, Eyes of same. *c*, Epigyne of same. *d*, Epigyne of *Diores bivittatus* Sim. from Alicedale.

Mr E. Simon described several species of this genus, and gave a key to the characters of the seven species then known, in his account of the spiders collected by Dr L. Schultze in S.W. Africa (*Denkschr. med. nat. Ges. zu Jena*, XVI. p. 185, 1910).

D. godfreyi seems to belong to the group of *triangulifer* from Damaraland, *transvaalicus* from Hamman's Kraal, and *vittipes* from Stellenbosch, species only known to me from Simon's descriptions. In these species, as in *vittatus*, the six hinder patellae are armed with spinules superiorly, but in *godfreyi* no spinules occur: instead, there are rather numerous short, more or less spiniform setae. The third patella of *vittatus* from Alicedale has a number of similar stout setae and in addition about twenty short strong spinules.



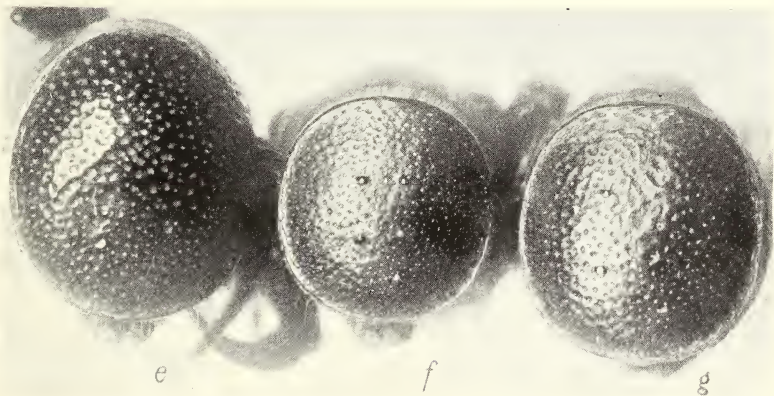
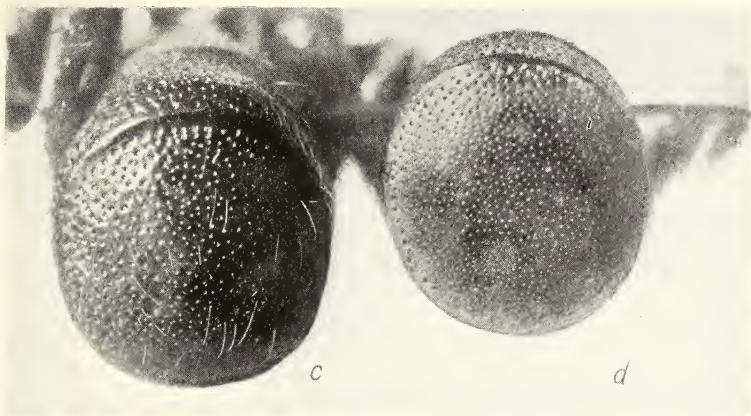
a-c. Three females of *Ceratogyrus brachycephalus* sp. nov., from N'jelele River.
d. Female of *Ceratogyrus dolichocephalus* sp. nov. from Victoria.



a. Male of *Ceratogyrus dolichocephalus* sp. nov. from Salisbury.
b. Female of *Idiotele nigrofuteus* (Pocock) from Malélane.
c. Female of *Palmatorycter breyeri* sp. nov. from Klipspruit.



a. Female of *Spiroctenus pardalina* (Hwtt.) from Wyldesdale.
b. Male of *Spiroctenus spinipalpis* sp. nov. from Ruby Creek hill.
c. Male of *Spiroctenus zebрина* (Purcell) from Ruby Creek.
d and e. *Spiroctenus curvipes* ♀ and ♂.



a. *Galeosoma coronatum spherioideum*.

b. *Galeosoma robertsi crinitum*.

c. Shield of *Galeosoma schreineri* (Hwtt.) from De Aar, in face view. Enlarged.

d. Shield of *Galeosoma pluripunctatum* sp. nov., from Mooi Vley.

e. Shield of *Galeosoma vandami* (Hwtt.) from Griffin Mine.

f and g. Shields of *Galeosoma vandami circumjunctum* var. nov. from N'Wanedzi River.

ADDENDUM I

Acanthodon flaveolum Poc.

The adult male of the typical form of *flaveolum* was taken recently in Grahamstown by Mr J. van Dam (15. ix. 1918). Frontal eyes about $\frac{1}{5}$ of a diameter apart, the anterior ocular quadrangle wider behind than in front, the ocular area approximately $\frac{1}{3}$ as long as the distance from the anterior margin of the carapace to the fovea. All the tarsi scopulate: tarsus I with a spine on each side. Metatarsus I only very slightly longer than tibia I, and only slightly curved near the base, but without distinct incrassation at any point: on the inner surface of the segment there are no distinct bristles, but stiffish hairs occur, and towards the apex are two long spines. Excavation of tibia of palp with a continuous semicircular group of spinules or short spines, the basal portion being best developed: altogether, there are about thirty such spinules. Carapace 4 mm. long.

ADDENDUM II

Spiroctenus londinensis sp. nov.

I have recently received specimens of a closely related species from Hogsback, Amatola Mts., also collected by Dr G. Rattray. These are presumably referable to *Hermachastes flavopunctatus* Purc. (*Annals S. Af. Mus.* III. p. 98, 1903). The species is evidently a member of the Bessia group. Its dentition resembles that of *londinensis*. There is an inner row of about thirteen teeth arranged along a curved line, and a basal group of very minute teeth on the outer side. Patella III has usually three spines on the anterior surface, sometimes four, or even only two: immature specimens of *londinensis* may also have three spines on this segment. The Hogsback females are considerably smaller than adults from East London, the carapace being only 6.4 mm. long: in a specimen of similar size from East London the hairs of the abdominal surfaces are much longer and stronger than in *flavopunctatus*, but otherwise the two seem much alike.

ADDENDUM III

(With 1 text figure.)

IN reply to Mr Tucker's criticisms¹ of my statements and conclusions on spider systematics:

p. 79. He is correct in objecting to the association of *Moggridgea seticoxa*, *coegensis* and *nigra* under the heading "Coxa II with a distinct posterobasal group of shorter and more densely crowded (often spiniform) setae inferiorly." The original MS read Coxa III (not II). The alteration was made by the printer. I may add that the whole paper (in *Annals Transvaal Mus.* vol. v. no. 2) is stultified by numerous quite palpable printer's errors, no proofs having been submitted to the writer.

¹ "On some South African Aviculariidae (Arachnida). Families Migidae, Ctenizidae, Diplotheleae and Dipluridae." By R. W. E. Tucker, B.A., in *Annals S. African Mus.* vol. xvii. pp. 79-138. It is an important paper, and well illustrated. In quoting from that paper the italics are mine.

pp. 84-87. In passing, it may be noted that Mr Tucker's descriptions of the two new species of *Stasimopus*, based on adult males, should be supplemented by comparative or absolute measurements of the palpal segments and of the segments of the first leg. Such data are of primary importance.

p. 97. Under the heading of *Homostola zebrina* Purcell, Mr Tucker says: "This species has been included by Hewitt as a synonym of *Spiroctenus*"; but—"it seems fairly clear that Purcell's *zebrina* is rightly referred to the genus *Homostola*, and further that it is not synonymous with *Spiroctenus*." In a further note on p. 136, in reference to my later work on *Spiroctenus* (*Homostola*) *zebrina*, he adds: "I have examined Hewitt's specimens both male and female and consider them to be true *Homostola* sp. *zebrina* and can hardly agree that they are *Spiroctenidae* though the two genera have much in common."

Now firstly, although Mr Tucker speaks with confidence regarding the actual identity of the genus *Homostola* Simon, yet there is considerable uncertainty on the matter: I have never seen any specimen agreeing with the description of the genotype *H. vulpecula*, nor had Dr Purcell when he described *zebrina*: certainly, Simon's description of the generic characters "Ungues postici serie unica dentium 6-7 inaequalium armati" and "metatarsi antici... parce et minutissimi aculeati" does not readily admit of the inclusion of *zebrina* therein.

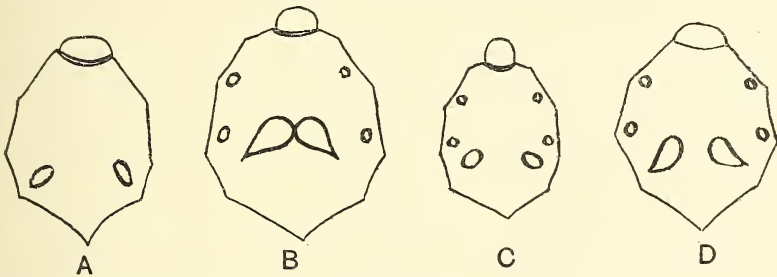
As regards the relation between *H. zebrina* Purcell and the genus *Spiroctenus*, Mr Tucker's remarks are truly ambiguous: he admits that "the genera have much in common," yet alluding to actual specimens of *zebrina* that I lent him, "can hardly agree that they are *Spiroctenidae*." What does this mean?

The chief point at issue is the taxonomic value of the sternal sigilla. In Simon's great work, the *Histoire Naturelle des Araignées*, this character was utilised in separating large groups of genera from each other, and later workers still seem to regard the character with favour. On the other hand, I am convinced that its value in classification has been greatly over-rated. The size and position of the posterior sigilla varies considerably during the lifetime of the same individual in various species of *Pelmatorycter*: the genera *Pelmatorycter* and *Ancylotrypa* as redefined by Mr Tucker, represent the opposite extremes of sigilla variation, yet are completely linked up by intermediate forms, and the relationship existing between extreme types is borne out by a study of the nests they construct. (See account of nests of *Pelmatorycter crudeni* and *P. parvus*—which latter would be called *Ancylotrypa* by Mr Tucker—in *S. Afr. Journal of Science*, 1916, July.)

My views will be understood from the accompanying figure, which is an exact copy of that published in Mr Tucker's paper and used by him to emphasize the essential difference between *Pelmatorycter* and *Ancylotrypa*. The figures A—D represent the sterna with sigilla of the males of four distinct species. A and C are referred by Mr Tucker to the genus *Ancylotrypa*: this well illustrates the fact that the *number* of sigilla does not signify, as a generic character. B and D are referred by Mr Tucker to the genus *Pelmatorycter*: these considered either alone, or in conjunction with A and C, show that *position* of sigilla is also of little value. There remains only to be considered the *shape* of the posterior sigilla, for it happens that both species chosen to represent *Pelmatorycter* have sigilla with pointed tails: however, his description of that genus commences "Posterior sternal sigilla large, oval or pear-shaped, and median to submedian in position." As regards actual size, the character is too variable to be admitted as a basis for generic separation. It

should be added that Mr Tucker has evidently recognized these facts, for in writing under the heading "Systematic value of sternal sigilla" he says of these genera: "In specimens of both genera available for examination great similarity exists, and the posterior sternal sigilla show less divergence than in other genera discussed."

It is possible that the species I have hitherto grouped together into the large genera *Acanthodon*, *Spiroctenus*, and *Pelmatorycter*, may be capable of segregation into natural groups, for which the establishment of generic or subgeneric names will be merely a matter for individual opinion: but I doubt if such division can be made solely on female characters. The secondary sexual characters of adult males may furnish a more solid basis for such subdivision. Some of the species included by Mr Tucker in the genus *Ancylotrypa* have a striking character in the horny processes of the male palps, but other species of that "genus" are completely devoid of such processes. As pointed out in my accompanying paper, characters of considerable constancy throughout whole groups of species are found in the tibial tubercles



of the first leg of male *Acanthodons*. Still, as an index of affinity, secondary sexual characters are apt to prove erratic, and for this reason I regard them for the most part as of subgeneric value only.

p. 112. Mr Tucker, after remarking that a number of female specimens from Stellenbosch strongly resemble *Hermacha nigra* and are apparently closely allied to it, adds: "it is no doubt a young example of this species which was described by Simon as *Damarchodes purcelli*" and then says "Damarchodes is considered by Purcell to be synonymous with *Hermacha*: Hewitt however thinks it allied to *Pelmatorycter*." What I actually wrote was: "Damarchodes is founded on a Stellenbosch species which is not known to me: many of its characters, according to the description, would seem to ally it with *Pelmatorycter* yet it must differ therefrom, apparently, in that the claws of the anterior tarsi are armed with a single series of teeth and the cephalothorax is crebre sericeo-pubescent."

p. 119. In dealing with the problematical genus *Thelechoris*, Mr Tucker places together specimens from Durban, Grahamstown and Cookhouse under the name of *Thelechoris australis* Purcell, the type of which came from Dunbrody: now the Durban specimens, as pointed out by me some years ago (*Annals Durban Mus.* vol. I. p. 132), are identical with the species *Evagrus caffer* Pocock, and a new generic name may have to be created for the species.

p. 126. In a somewhat lengthy historical account of the vicissitudes of the names *Idiops* and *Acanthodon*, Mr Tucker complains that I still make use of the latter name. He thinks it should now be abandoned.

It is true that M. Simon in the appendix to his great work has placed the two names as synonymous because the ocular characters have no generic

value, and that, so long ago as 1870, Mr O. P. Cambridge made the same suggestion, but in both instances the accompanying propositions are so obviously untenable that one may reasonably hesitate to accept their view on this point: and indeed, Mr Tucker himself rejects the simultaneous proposal of M. Simon to restrict the use of the generic name Idiops to the tropical American species. Idiops and Acanthodon were not founded on specimens of the same sex; there seems to be no evidence that they came from the same part of Brazil—a rather large country—and though apparently only two Idiopine genera are recorded from that part of the world it is very probable that more do occur. Petrunkevitch in his recent *Index Catalogue of American Spiders* remarks thus: “especially the tropical countries of Central and South America will yield for a long time to come an inexhaustible amount of new forms.” Less than a generation ago, only one Idiopine genus was recorded from S. Africa: since then, half-a-dozen genera have been recognized, all founded on characters of female specimens. It is important to note that amongst Idiopine spiders the females afford better generic characters than males, and that males of related genera, being more generalized than females (except as regards purely sexual characters), are very easily confused together, in spite of the fact that in specific differentiation the males provide more tangible characters: to illustrate this, I need only mention that males of Galeosoma are almost completely devoid of the one character which so markedly distinguishes the genus, and thus are very like males of Acanthodon. It seems to me therefore that the identity of Idiops with Acanthodon should be regarded as *sub judice*.

Again, I have previously explained in what sense I employed these terms Idiops and Acanthodon (*Annals Durban Mus.* i. p. 225): in thus limiting the generic groups, I have merely followed Dr Purcell (*Trans. S. Afr. Phil. Soc.* xv. p. 118), but on ascertaining that S. African females referable to the genus Ctenolophus are generically identical with the type of Acanthodon, I have not hesitated to abandon the name Ctenolophus in favour of Acanthodon. Assuming the correctness of Mr Tucker's statement in the following extract from his account, it would seem that Idiops and Acanthodon may each be maintained in their original sense with propriety: “It may be mentioned that *Ctenolophus* and *Idiops* differ in one respect, namely, the latter has two rows of teeth on the cheliceral groove whilst the outer row is represented in *Ctenolophus* by minute denticles only: this by itself is perhaps hardly sufficient for separation, though fairly constant, but would no doubt serve to divide the group into two main classes.”

On this, I may remark that all we require of a character for generic purposes is *constancy*: a small character is more important than a large one, if it is more constant.

As a matter of fact, this dentition character presents intermediates between the Ctenolophus type and that to which the term Idiops was restricted by Dr Purcell. When but few species were known, it was easy enough to limit such groups as Ctenolophus, Idiops, and Gorgyrella, but the more we increase our knowledge of the fauna, the more we realise the impossibility of drawing sharp lines between the genera. However, as a matter of convenience it seems better to retain the names Acanthodon and Idiops (or alternative names), either as genera or as subgenera: for the two groups have some geographical significance. Various species of Acanthodon are known from the Cape Province, but not a single Idiops: on the other hand, the Indian species seem to be true Idiops (cp. *I. biharicus* Gravely).

Mr Tucker's proposal to establish a new genus, Segregara, on those Acanthodons (excluding Gorgyrella) which have three pairs of sigilla, only adds to the difficulties of systematists, and is open to the still more serious objection that it conveys an impression of discontinuity which actually does not exist. I am quite satisfied that in a natural system of classification the species which "are distinct in the possession of 3 pairs of small marginal sigilla" should not be generically separated from those otherwise similar species which have only two such pairs. *Acanthodon microps* usually has two pairs of sigilla, but occasionally has three pairs. The very first species mentioned by Mr Tucker as referable to his genus Idiops, as thus restricted, will witness against the advantage of basing genera on meristic variations—the trisigillate form is primitive—of this kind, for I have a specimen of *spiricola* which on one side presents three sigilla, but on the other side only two.

It is admitted however that the position of sigilla relative to the margin of the sternum is of rather more importance, and thus the genus Gorgyrella has better claims for recognition. Still, a study of the Transvaal species has convinced me of the impossibility of separating genera on this character. There seems to me no justification for generically separating *Acanthodon transvaalensis* from *schreineri* as proposed by Mr Tucker. My conclusions are also supported by habitudinal characters. There is a small Transvaal form of Gorgyrella which I can only recognize as a variety (*minor*) of *schreineri*¹: only recently have I learnt, from Mr G. van Dam, that this spider has a remarkable type of lid, closely resembling that of *abrahami*² (the type of Segregara). We know that considerable differences are found amongst the lids of the different members of a genus, but it seems most improbable that species which agree together in making a lid so characteristic as that of *abrahami* can belong to different genera.

Lastly, Mr Tucker's speculations on the generic migrations and origins of the Idiopaeae are by no means convincing. He says: "Now Pocock, writing on the geographical distribution of the Ctenizidae (*P.Z.S.* 1903) considers that Idiops reached South America, not from N. America but from Africa. This and the general geographical distribution of the Idiopaeae indicate that Tropical Africa was the seat of origin of the group." And again: "Finally, Gorgyrella can also be regarded as an off-shoot from form (A) and it is important in that it lends support to the theory of the South African origin of the Idiopaeae in that it is found in S. Africa alone." This interpretation of the great diversity of form that obtains in Southern Africa may happen to be actually correct, but is certainly not adequately supported by facts. The Idiopine fauna in most parts of its extensive range through the warmer parts of the world has scarcely been touched, and we know absolutely nothing whatever of its geological history. To-day, Africa is the headquarters of Antelopes, yet H. F. Osborn tells us "it is probable that the Antelopes together with the entire stock of Cavicornia, including the Bovinae, or cattle, originated in Asia." (See his *Age of Mammals*.)

The apparent absence of Idiopine genera from the south-west parts of the Cape, and from Madagascar, will probably be more generally interpreted as signifying the comparatively recent arrival of this group in Africa.

Any attempt to correlate the evolution of the group as a whole with the known facts of distribution must be of very doubtful value, so long as the available data are so very imperfect.

¹ See G. van Dam and A. Roberts in *Annals Transvaal Mus.* vol. v, p. 223.

² See F. Cruden in *S. Afr. Journal of Science*, July 1916.